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NEMATOLOGY LITERATURE LIST

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Publications reviewed by Nematology Investigations between November 15, 1959 and November 15, 1960. Most of the papers were indexed from the original journals or from reprints received through courtesy of the authors*. A few more indexed from abstracting journals. Still fewer were merely listed. In many cases the published abstract or a short note has been added to indicate the nature of the contents of the paper.

* Nematology Investigations wishes to thank all authors who have contributed reprints to their collection. Thanks are also due to Mrs. Virginia Harrington for the typing of this publication.

Alcocer, Gomez L. 1959. "Morfologia y biología de un nematodo aislado de las raíces nodulares de plantas de jitomate, *Lycopersicum esculentum* Mill., de las principales regiones agrícolas de México." Thesis, Mexico. 43pp.

Allen, M. W. (in Horsfall, J. G. & Dimond, A. E.) 1960. Chapter 15, Nematocides, in: *Plant Pathology, An Advanced Treatise. Vol. II, The Pathogen.*" Academic Press, N. Y., 715pp. (Chapt.15:603-638). General summary type article.

Andrassy, I. 1959. "Ergebnisse der zoologischen Aufsammlungen des Ungarischen Naturwissenschaftlichen Museums in Ägypten im Jahre 1957. 3. Einige Nematoden aus dem Roten Meer." *Annales Historico-Naturales Musei Nationalis Hungarici.* 51: 247-257.

_____. 1959. "Was ist Dadays Nematoden-Art *Pseudochromadora quadripapillata?*" *Opuscula Zoologica - Instituti Zoosystematici Universitatis Budapestinensis.* III(2):51-55.

_____. 1959. "Neue und wenig bekannte Nematoden aus Jugoslawien." *Annales Historico-Naturales Musei Nationalis Hungarici.* 51:259-275.

_____. 1959. "Taxonomische Übersicht der Dorylaimen (Nematoda).I." *Acta Zool. Acad. Sci. Hungaricae.* 5(3/4):191-240.

_____, and D. Coman. 1959. "Eine - vermutlich neue - Meloidogyne-Art (Nematoda) aus einer Wasserleitung." *Opuscula Zoologica - Instituti Zoosystematici Universitatis Budapestinensis.* III(2):57-60.

Andrassy, I. 1959. "Weitere Nematoden aus der Tropfsteinhöhle 'Baradla'." (More nematodes from the stalactite cavern Baradla) *Acta Zool. Acad. Sci. Hungaricae* 5(1/2):1-6. A total of 8 spp. were found in samples of water and soil, of which 5 were previously unknown in Baradla (Hungary). Locations are reported for Eucephalobus latus, Wilsonema otophorum, Dorylaimus obtusicaudatus and Tylencholaimus teres. An analysis is presented for a new sp., Myolaimus amititiae, which differs from other spp. of this genus in the formation of its oral cavity and the caudal part of the male.

_____, 1960. "Taxonomische Übersicht der Dorylaiminae (Nematoda).II." (Taxonomic review of the Dorylaiminae (Nematoda).II) *Acta Zool. Acad. Sci. Hungaricae* 6(1/2):1-28. Descriptions and a key for deciding the species in 4 new genera of the sub-family Dorylaiminae are presented. Lordellonema is primarily characterized by small, tapering, prominent structures which run ventrally and laterally over the whole body in 2 longitudinal rows. They are connected with large glands and provided with delicate excretory canals. Meylonema may be recognized by its peculiar head-structure, very weak stinger, simple guide ring (FUHRUNGSRING), prevulvar ovary and short tail. Amphidorylaimus resembles Prodorylaimus in its elongated tail. However, it differs in the structure of the head and spicula, the number and arrangement of pre-anal organs, and probably also by the presence of the gubernaculum. Members of the genus Thorneella seem to be most closely related to those of the genus Thornia on the basis of their double

guiding ring, missing pre-anal organs and the shape of their tail. They can be easily differentiated by their oval (not funnel-shaped) lateral-line organ with a very small opening and their dorylaimoid spicula without gubernaculum but with lateral accessory pieces. A bibliography is presented which includes works appearing after 1935.

Anon. 1959. "Diseases of cabbages, cauliflowers, and related plants." Agr. Gazette of New South Wales. 70(4):194-204.

_____. 1959. "Disease in the flower garden" Agr. Gazette of New South Wales. 70(7):343-354, 382.

_____. 1959. "Nematode in new area." Agricultural Research. 8(6):15.

_____. 1959. "Compendium of plant diseases with 125 colored illustrations." 3 articles (in a book of 264 pp.).

_____. 1960. "Index of plant diseases in the United States." Agric. Handbook (U.S. Dept. Agric. ARS, Crops Research Div.) (165):531pp.

_____. 1960. "Methods of application for nematode control." Agricultural Chemicals 15(1):63, 95-96.

_____. 1960. "A tobacco first." Agricultural Research, U.S.D.A. 8(8):15. Article by T. W. Graham in South Carolina on breeding line resistant to root knot. (Being released).

_____. 1960. "Potato root eelworm." Northern Ireland. Ministry of Agriculture. 117, 4 p.

_____. 1960. "How pure is your city water?" U.S. News & World Report. 48(9):52-54. Work of Shih Lu Chang, survey of water supply of 22 of nation's largest cities for USPHS. Nematodes found in drinking water from 13 rivers, vector dangers.

_____. 1960. "Coming: Nematode-resistant sugarbeets". Agricultural Research 8(12):3-4. Chemical treatment of plant material doubles chromosome number, thus facilitating successful crossing.

_____. 1960. "Soybeans are being bred to resist: Soybean cyst nematode." Agricultural Research. 9(1):12.

_____. 1960. "Nematodes have another enemy." Agricultural Research (U. Dept. Agric.) 9(5):11. Re: fungus *Catenaria vermicola*.

Apt, Walter J., H. M. Austenson and Wilbur D. Courtney. 1960. "Use of herbicides to break the life cycle of the bentgrass nematode, *Anguina agrostis* (Steinbuck 1799) Filipjev 1936. Plant Disease Reporter. 44(7):524-526.

Artem'yev, Ye. I., and G. M. Brakovaskaya. 1957. "Strawberry nematode". Zashchita Rast. ot Vredit. i Boleznei. (5):57. Investigations conducted on the territory of Latvia in 1955-1956 established that strawberry crops on 9 farms were infected by *Aphelenchoides fragariae*. On 8 farms the nematodes infected 2 to 10% of the strawberry crops, on 1 farm, 100%. Up to 1000 nematodes were found in 1 g of plant tissue. Disinfection of the seeding material with gas (50 g of methyl bromide to 1 m³ for 3 hours, 10 minutes) and thermic methods (10 minute soaking in water at 46° temperature) produced good results.

Atakhanov, S. A. 1958. "Seven new species of nematodes." In Russian. Proc. Helminth. 80th Anniv. Academi. K.I. Skrjabin, Izdatel. Akad. Nauk SSSR, Moskva. pl2-49 (figs. 1-7). Re: *Diplogaster paramonovi* nov. sp.; *Acrobeles pachidinovae* nov. sp., *Cephalobus kipchaus* nov. sp., *Eucephalobus tulaganovi* nov. sp., *Ditylenchus sapari* nov. sp., *Hexatylus beljaevae* nov. sp., *H. skarbilowiae*.

Aycock, Robert. 1960. "The influence of preplanting treatments of root knot infested gladiolus corms and row applications of nematocides on nematode control and production of corms and flowers." Phytopathology 50(8):Part I:574.

Ayoub, Sadek M. 1960. "A new host of *Pratylenchus coffeae* for the United States." Plant Dis. 44(9):755.

Baines, R. C., and others. 1959. "Controlling citrus nematode and Phytophthora fungi." Calif. Citrog. 44(11):380-382. R. H. Small, T. A. DeWolfe, and L. J. Klotz, joint authors. Re: mylone.

_____. 1959. "Factors influencing control of the citrus nematode in the field with D-D." Hilgardia 29(8):359-381. F. J. Foote, L. H. Stolzy, R. H. Small, and M. J. Garber, joint authors. *Tylenchulus semipenetrans*.

Baines, R. C., W. P. Bitters, & O. F. Clarke. 1960. "Susceptibility of some species and varieties of citrus and some other rutaceous plants to the citrus nematode." Plant Dis. Repr. 44(4):281-285.

Baker, A. D. 1959. "Some records of plant-parasitic nematodes encountered in Canada in 1958". Canadian Insect Pest Review. 37(1):120-122.

_____. 1959. "Some records of nematodes encountered on plant material in Canada in 1959." 39th Annual Report of the Canadian Plant Disease Survey 1959. pgs.xviii-xxi. Records of many nematodes on many hosts, received from many countries, and from Canada.

Baranovskaya, I. A. 1958. "New species of nematodes on cereals in the environs of Moscow." (In Russian; 2 figs.) Proc. Helminth. 80th Anniv. Acad. K. I. Skrjabin, Izdatel Akad. Nauk SSSR, Moskva. Re: *Rhabditis* (*Mesorhabditis*) *signifera* nov sp., and *Aphelenchoides clarolineatus* nov. sp.

Baranovskaya, I. A. 1958. "Contribution to the knowledge of the genus *Paraphelenchus* (Micoletzky, 1922) Micoletzky, 1925 - Nematoda: Aphelenchidae." Zool. Zhurnal. 37(1):13-18. English summary.

Bassus, W. 1959. "Die Kalkung von Waldböden und ihr Einfluss auf die Nematodenfauna." Wiss. Ztschr. der Martin-Luther-Wiss. Z. Univ. Halle. Math. Nat. VIII(4/5):537-538.

Bassus, Wilfried. 1960. "Die Nematodenfauna des Fichtenrohhumus unter dem Einfluss der Kalkdüngung." Nematologica 5(2):86-91.

Baudin, P. 1956. "Maladies parasites des ignames en Côte d'Ivoire." Rev. Mycol. 21:87-111.

Baxter, L. W. and Pryce B. Gibson. 1959. "Effect of root-knot nematodes on persistence of white clover." Agron. Jour. 51(10):603-604. Introduction of each of the 5 root-knot nematodes, *Meloidogyne arenaria* M. *hapla* M. *incognita* M. *incognita* var. *acrita* and *M. javanica* into field plots of white clover enclosed by metal rims caused a reduction in the stand of the clover. Results on Hiwassee loamy sand and Lakeland sand were essentially the same. These results indicate that the nematodes if present in the soil will reduce the persistence of white clover. Hence resistance to attack by nematodes prevalent in the area where a variety is to be recommended is a desired characteristic of any variety of white clover.

Beliaeva, I. V. 1959. "Nematode fauna of basic types of soil of Kara-Kalpak." (In Russian) Trudy Gel'min. Lab. Akad. Nauk SSSR. 9:49.

Bergeson, Glenn B. 1959. "The influence of temperature on the survival of some species of the genus *Meloidogyne*, in the absence of a host." Nematologica 4(4):344-354.

Bird, Alan F. 1959. "The attractiveness of roots to the plant-parasitic nematodes *Meloidogyne javanica* and *M. hapla*." Nematologica 4(4):322-335.

 . 1960. "The effect of some single element deficiencies on the growth of *Meloidogyne javanica*." Nematologica 5(2):78-85.

Blake, C. D. 1958(1959). "A turbidimetric method of estimating the number of nematode larvae in a suspension." Proc. Linn. Soc. N.S. Wales. 83(Part 3, No. 388):241-244. A turbidimetric method for estimating the number of nematode larvae in an aqueous suspension stabilized with 0.5% carboxymethyl-cellulose is described.

Blake, C. D., and R. J. Conroy. 1959. "Some nematodes as factors in yield reduction and spawn degeneration in the cultivated mushroom *Agaricus hortensis* (Cke.) Imai." Jour. Australian Inst. Agric. Sci. 25(3):213-216. Surveys of commercial mushroom beds showed low yield to be associated with high nematode populations and high yield with low populations. Nematodes were of many genera, notably *Rhabditis* spp. and *Ditylenchus myceliophagus*. Introduction of extracted nematodes into established rye grain mushroom cultures was followed by degeneration of mycelia, the type of degeneration and degree of bacterial activity varying with the nematode inoculum used. In the absence of facilities for peak heating, fumigation with methyl bromide (1 lb./100 cu. ft. of compost) is recommended.

Böhm, O. 1956. "Beobachtungen an österreichischem Kartoffelälchenmaterial." Pflanzenarzt. 9(8):76-77.

Bosher, J. E. 1960. "Longevity in vitro of *Ditylenchus dipsaci* (Kühn) Filipjev from *Narcissus*." Proceedings of the Helminthological Society of Washington. 27(2):127-128.

Boyd, A. E. W. 1943. "Observations on the biology of the potato-root eel-worm, *Heterodera schachtii* Schmidt." Ann. Appl. Biol. 30(2):157-161.

Boyd, G. R. 1959. "Determination of residues of 0-2,4-Dichlorophenyl 0,0-Diethyl Phosphorothioate (V-C 13 Nemacide) by Cholinesterase Inhibition." Jr. Agric. & Food Chemistry. 7(9):615-617.

van den Brande, Jozef, Rene H. Kips & Julien D'Herde. 1959. "Control of golden nematode cysts adhering to begonia and gloxinia tubers." Proceedings of the IVth. International Congress of Crop Protection Hamburg 1957. I: 615-618 (Braunschweig 1959). Dipping tubers in chlorobromopropene-emulsion was effective.

Braun, Alvin J. and J. A. Keplinger. 1960. "The pathogenicity of meadow nematodes as determined by the growth of strawberry plants in a commercial planting." Phytopathology. 50(4):239.

Brown, E. B. 1959. "Eelworms on strawberries." Plant Path. 8(4):152. *Aphelenchoides* spp.

_____. 1959. "New or uncommon plant diseases and pests. Eelworms on strawberries." Plant Pathol. 8(4):152. *Aphelenchoides ritzema-bosi* and *A. fragariae*, and probably *Ditylenchus dipsaci* attacks strawberries.

_____. 1959. "New host plants of *Aphelenchoides ritzema-bosi*." Plant Path. 8(4):152. *Peperomia*.

_____. 1959. "New or uncommon plant diseases and pests. New host plants of *Aphelenchoides ritzema-bosi*." Plant Pathol. 8(4):152. New records of this eelworm on *Peperomia griseoargentea* and *P. caperata*.

_____. 1959. "A broad red clover resistant to stem eelworm." Plant Pathology. (London). 8(4):124. This stock found by chance, now undergoing further tests at Plant breeding Institute and the National Institute of Agricultural Botany at Cambridge. A stock of broad red clover was discovered in 1955 in a field in Hertfordshire which was definitely unaffected by the stem eelworm, *Ditylenchus dipsaci*, although another stock growing beside it was severely attacked.

Brucher, H. 1960. "Über das Wildvorkommen des Nematoden *Heterodera rostochiensis* in Nord-Argentinien." Naturwissenschaften 47(1):21.

Brzeski, M. 1960. "Cephalobus (Heterocephalobus) kaczanowskii subgen. nov. sp. nov. Nematoda: Cephalobidae." Bull. L'Academie Polonaise d. Sciences, Cl. II (Serio d. sci. biol.) 8(4):163-165.

_____. 1960. "Andrassyia vivipara gen. nov. sp. nov. (Nematoda; Tripylidae)." Bulletin del' Academie Polonaise des Sciences Cl. II. VIII (2):81-84. 32 specimens of this species found in samples collected with plankton net, from submerged plants in Mragowa District, Poland. It is believed to have developed from the more primitive genus Tripyla, from which it differs in the longer and more delicate cephalic setae, larger amphids, terminal dilatation of the esophagus, straight ovaries, and subterminal position of the apertures of the caudal glands.

Cairns, E. J., and Minton, N. A. 1959. "Resistant crops, rotations economical approach to root-knot nematode situation." Highlights Agr. Res. (Ala. Sta.) 6(2):16.

_____. 1959. "How samples are checked for nematodes." Highlights Agr. Res. (Ala. Sta.) 6(3):15.

Campbell, Leo and Wilbur D. Courtney. 1960. "Effect of high-temperature water vapor on soil organisms." Plant Disease Reporter. 44(10):804-805.

Canizo Gomez, J. Del. 1959. "Flagas de la patata: el nematodo dorado." ASPAS, 32:3-5.

Canizo, J. Del. 1959. "Flagas de la patata: el nematodo dorado." Inst. Agr. Catalan de San Isidro. Rev. 108(10):133-135. *Heterodera rostochiensis*, general article on golden nematode of potato.

Capinpin, R. I. 1958. "Nematodes-a new frontier in agriculture." Philippines Sugar Technol. Proc. Conv. 6:114-116.

Carraro, G. 1958. "The presence of the citrus nematode (*Tylenchulus semi-penetrans* Cobb.) in Tripolitania." (In Italian.) Redia 43:103-105. English summary. Yellowing of the leaves was observed beginning in 1954. Examination of the roots proved the presence of this nematode, which must have been introduced on imported plants, and has spread quickly. It is estimated that about 70 - 80% of the plants have their roots infested.

Carter, Walter. 1944. "The use of D-D mixture against anomala and adoretus infesting nursery stock." Journal of Economic Entomology. 37(1):117. Re: Ground beetle larvae - no mention of nematodes (Hawaii).

_____. 1946. "Soil fumigation." Bol. Soc. Bras. Agronomia (Rio de Janeiro). 9(4):245-248. General article on control-mostly of soil insects "nematodes" mentioned only incidentally.

_____. 1954. "Dichloropropane-dichloropropene mixtures of different composition as soil fumigants in Pineapple land." Jnl. of Economic Entomology 47(6):1101-1103.

Carvalho, J. C. 1959. "The burrowing nematode and its appearance in Sao Paulo." (In Portuguese.) Biologico 25(9):195-198. *Radopholus similis*, especially on bananas and citrus.

. 1959. "Descricao do Macho de *Scutellonema boocki* nematoda: Tylenchidae." Instituto Biologico. 26(6):41-44. English abstract of description of ♂ *S. boocki* from soils of Sao Paulo, Brazil.

. 1959. "Helicotylenchus elisensis n. comb. nematoda: Tylenchidae." Instituto Biologico (Brazil). 26(7):45-48. English abstract of description of *H. elisensis* from soybean in Sao Paulo, Brazil.

Caveness, Fields E. 1959. "Status of crop sequences related to *Heterodera schachtii* on sugar beets." Jour. Amer. Soc. Sugar Beet Technol. 10(4):283-285. The sequences of crops in sugar beet growing programs in California, Colorado and Michigan are unfavorable for the extended production of sugar beets due to the minimum suppression of *H. schachtii* by crop rotation. The generally recommended 4 or more years rotation between susceptible crops was practiced in just 10.2% of the fields studied.

. 1959. "Distribution of cyst and gall-forming nematodes of sugar beets in the United States." Jnl. of the American Soc. of Sugar Beet Technologists. X(6):544-552. Re: *Heterodera schachtii*, *Meloidogyne* spp. and *Nacobbus batatiformis*, with maps showing distribution by counties.

Caveness, Fields E. and James D. Panzer. 1960. "Nemic Galvanotaxis." Proc. of the Helminthological Soc. of Wash. 27(1):73-74.

Chamberlain, R., and Willis, R. J. 1960. "Prevention of tulip root in oats." North Ireland Min. Agr. Mon. Agr. Rpt. 34(11):333-336. *Ditylenchus dipsaci*.

Chapman, Richard A. 1960. "The effects of *Meloidogyne incognita* and *M. hapla* on the growth of Kenland red clover and Atlantic alfalfa." Phytopathology. 50(3):181-182.

Chernikova, M. S. 1959. "Stem nematode of strawberries." Trudy Gel'min. Lab. Akad. Nauk. SSSR. 9:368-369. In Russian - indexed from title only - apparently *Ditylenchus dipsaci*.

Chitwood, R. G. 1960. "Choanolaimus psammophilus J. G. de Man, 1880, rediscovered, and *synonchium obtusum* N. A. Cobb, 1920, as a natural enemy of plant pathogens." Nematologica - 50th International Symposium at Uppsala August 1959. Supplement II:56-60.

Christie, J. R. 1960. "Invisible worms cost farmers millions." Agr. Leaders' Digest 41(4):10-11, (5):12-13.

. 1960. "Some interests entomologists and nematologists have in common." Florida Entomologist. 43(2):43-48. Several interrelationships of insects and nematodes discussed.

Chupp, Charles and Arden F. Sherf. 1960. "Vegetable diseases and their control." Ronald Press Co., New York. 693 pp.

Church, B. M., H. C. Gough and J. F. Southey. 1959. "Soil sampling procedures for potato root eelworm cysts." *Plant Pathol.* 8(4):146-151. Analysis of the data obtained by systematic sampling of 12 fields with potato root eelworm populations near the critical level provided information which should make it possible for those doing routine sampling for advisory and similar purposes to assess the accuracy of their present soil sampling methods, and to improve on them if necessary. The field sampling errors appear to be rather greater than those observed for cereal root eelworms, but they can be significantly reduced by sampling systematically at points on a regular grid rather than at random, and much the same recommendation can be made for estimating populations of both species.

Ciferri, R. 1959. "Nematodes and virus diseases of grapes." (In Italian) *Colt. e Gior. Vinic.* Ital. 105(4):103-104.

 . 1959. "Recent progress in nematology." *Colt. e Gior. Vinic.* Ital. 105(11):302-306.

Clausen, C. P. 1952. "Parasites and predators." Yearbook of Agriculture of 1952. Separate #2345:380-388. General article on insect parasites and biological control thereby, but could find no mention of nematodes.

Cole, C. S. and H. W. Howard. 1959. "The effect of growing resistant potatoes on a potato root eelworm (*Heterodera rostochiensis* Woll.)" *Nematologica* 4(4):307-316.

Collis-George, N. and Blake, C. D. 1959. "The influence of the soil moisture regime on the expulsion of the larval mass of the nematode *Anguina agrostis* from galls." *Austral. J. Biol. Sci.* 12(3):247-256. Galls formed on *Agrostis tenuis*.

Collis-George, N. 1959. "The physical environment of soil animals." *Ecology* Durham, N. C. 40(4):550-557. Nematodes only mentioned in quoting previous work. Soil water largely dominates the other aspects of environment, namely soil atmosphere, soil temperature and freedom of movement. These factors are controlled by 3 soil physical properties, texture, structure and soil water suction; and one mechanical property, the shear strength, which is moisture dependent.

Conroy, R. J., and C. D. Blake. 1959. "Nematode pests of mushrooms." *Agric. Gaz. New S. Wales* 70(12):614-618. Many insects, diseases and competitive fungi occur in mushroom beds to cause failure. Recently the presence of certain nematodes has been shown connected with declining productivity, slow growth, and disappearance of mycelium after spawning. The mushroom-spawn nematode (*Ditylenchus myceliophagus*) has a spear with which it punctures the strands of spawn, causing degeneration and ruin of the spawn. Other nematodes *Rhabditis* spp. without spear, may cause trouble by their excretions in the compost also by stimulation of the bacterial population. An important source of nematode infestation has been found in animal manure and straw manure making compost heaps. Also certain nematodes seem to be introduced in the



bedboards where they may survive between crops. Prevention of infestation by heating the compost to 130-140F for 24 hrs. or sterilizing the house by steam at 130-140 F for 1 day, are means of reducing nematodes. Fumigating compost heaps with methyl bromide is also used, but being highly poisonous, required special handling.

Cotten, J. 1960. "Observations on the cytology of the potato-root eelworm, *Heterodera rostochiensis* Wollenweber." *Nematologica* - 50th International Symposium at Uppsala August 1959. Supplement II:123-126.

Couch, Houston B. and James R. Bloom. 1960. "Influence of soil moisture stresses on the development of the root-knot nematode." *Phytopathology*. 50 (4):319-321.

Couturier, Albert. 1959. "Observations sur le polymorphisme des larves infectieuses chez les mermithidae nematodes." *Comptes Rendus Academie des Sciences (Paris)*. 248:2123-2125.

Cunningham, P. C. 1959. "The potato-root nematode". *Agr. Rec.* 12:55-57, 59-60. *Heterodera rostochiensis*. General article on history, significance, prevention and control.

Dallimore, C. E. 1960. "Symptoms of *Ditylenchus destructor*, the potato rot nematode infection, and their development during storage." *Phytopath.* 50(1):83.

_____. 1960. "A two-bottom two-way plow sole fumigator." *Phytopath.* 50(1):83.

_____. 1960. "Soil fumigation with a two-bottom two-way plow." Idaho Agric. Experiment Station Univ. of Idaho - Aberdeen Branch Station. Bulletin 337:20pp.

Damanskaia, L. Iu. 1959. "On the question of the control of stem nematode of phlox." *Trudy Gel'min. Lab. Akad. Nauk. SSSR*, 9:82-86. (In Russian) *Ditylenchus phloxidis*, Kirjanova, 1951 ~ indexed from title only.

Darrow, G. M., McGrew, J. R., and Scott, D. H. 1960. "Reducing virus and nematode damage to strawberry plants." U.S.D.A. L. 414, slightly rev., 7pp. Re: northern root knot and lesion nematodes. Control by hot water and chemicals recommended.

Das, V. Manohar. 1960. "Studies on the nematode parasites of plants in Hyderabad (Andhra Pradesh, India)." *Zeitschrift fur Parasitenkunde*. 19(6): 553-605. 19 new species described, and new hosts recorded for already known species.

Davies, D. M. 1959. "Some parasites of Canadian black flies Diptera, Simuliidae)." International Congress of Zoology (15th), London, July 16-23, 1958. pgs.660-661. Re: mermithids, microsporidia, and water mites.

Davis, D. and J. E. Deak. 1960. "An assay for the detection of nematode repellents." *Plant Dis. Repr.* 44(8):622-624.

Davis, R. A. and W. R. Jenkins. 1960. "Nematodes associated with roses and the root injury caused by *Meloidogyne hapla* Chitwood, 1959, *Xiphinema diversicaudatum* Micoletzky, 1927 Thorne, 1939, and *Helicotylenchus nannus* Steiner, 1945." University of Maryland Agricultural Experiment Station Bulletin A-106. pgs. 2-16. List of genera and species found associated with roses from 27 states - no locations and not indexed.

Davis, R. A. 1960. "Nematodes associated with roses." Amer. Rose Annu. 45:34-47. In survey of outdoor-grown roses in 29 states and D. C. all samples contained plant-parasitic nematodes. Also illustration of sectioned, stained roots of 3 species.

Decker, H. 1958/1959. "Untersuchungen über das Vorkommen und die phytopathologische Bedeutung der wandernden Wurzelnematoden in Mecklenburg unter besonderer Berücksichtigung ihrer Beziehungen zum Auftreten der sogen Baumschulmüdigkeit." Wiss. Ztschr. der Univ. Rostock Math. Naturw. Reihe. 8(Heft 2):255-256.

. 1959/1960. "Die endoparasitischen Wurzelnematoden der Gattung *Pratylenchus* als einheimische Pflanzenschädlinge." Wiss. Ztschr. Univ. Rostock Math. Naturw. Reihe. 9(1):27-34. Re: sex ratios of *P. penetrans*, anabiosis, and "Ne 45" - a nematicide which gave very good results against *P. penetrans*; also quite a few hosts are given.

. "Pratylenchus penetrans als Ursache von Müdigkeitserscheinungen in Baumschulen der DDR." Nematologica - 50th International Symposium at Uppsala August 1959. Supplement II:68-75.

Delevic, Branko. 1957. "A contribution to the study of the spread of the nematode *Tylenchus tritici* Stein. on the territory of the PR Serbia in 1951 and the possibilities of its Hibernating." Plant Protection Belgrade?. (45): 27-38. English summary. *Dilophospora alopecuri* associated with nematodes.

Deubert, Karl-Heinz. 1958. "Zur nematodenfauna der Luzerne." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg Wiss. Z. Univ. Halle Math. Nat. VII(3):463-464.

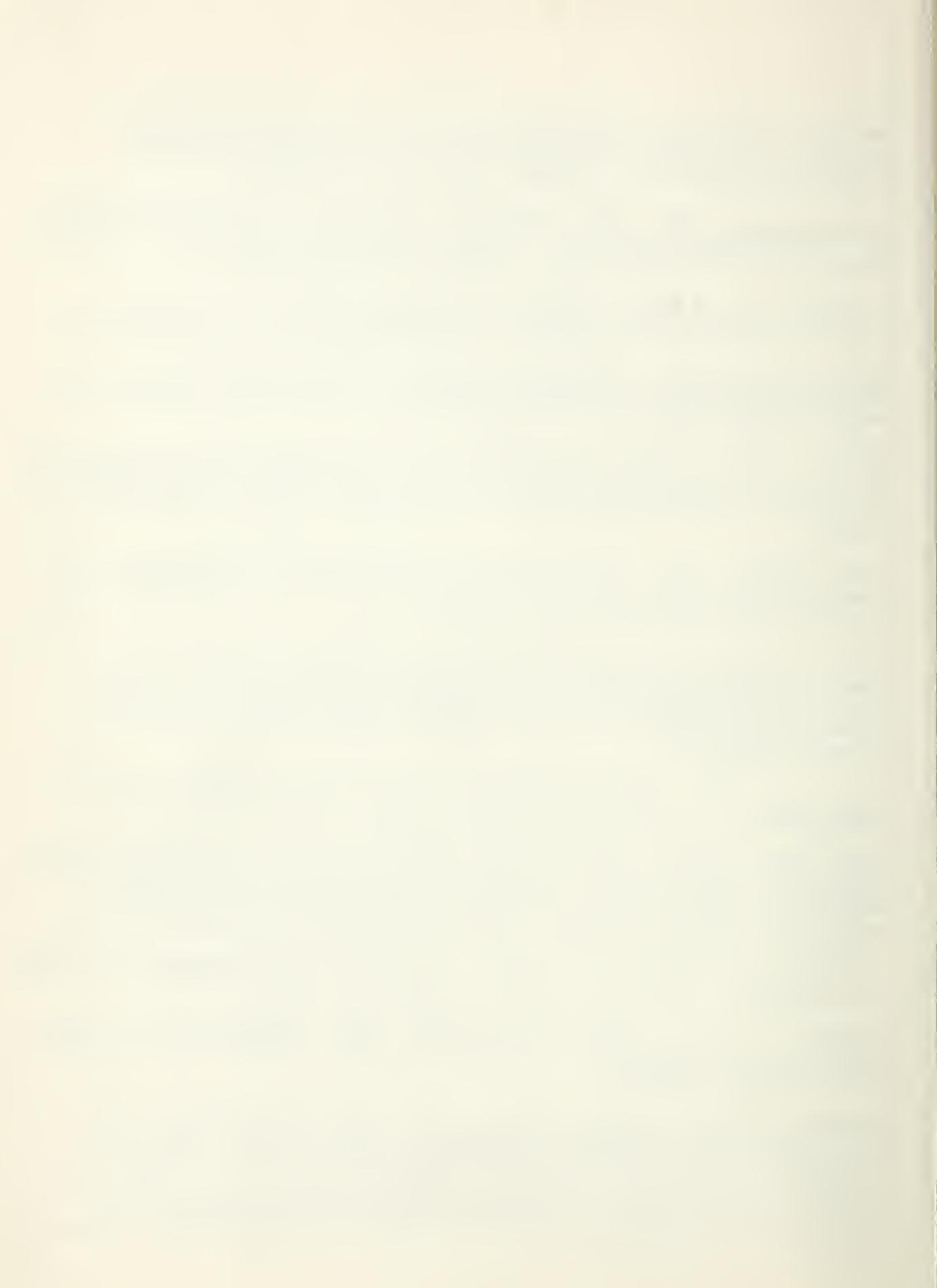
. 1958. "Über den Einfluss von Roggen, Weizen, Rotkleee und Kartoffeln auf die qualitative Zusammensetzung der Nematodenfauna." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg Wiss. Z. Univ. Halle Math. Nat. VIII(1):15-16.

. 1959. "Organische Düngung und Nematodenbesatz." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg Wiss. Z. Univ. Halle. Math. Nat. VIII(4/5):538.

Deubert, K. H., J. Prasse, M. Teichert. 1959. "Die Entwicklung des Institutes für Landwirtschaftliche Zoologie und Haustierkunde in den 10 Jahren seines Bestehens 1949-1959." Wiss. Ztschr. der Martin-Luther Univ. Halle-Wittenberg Wiss. Z. Univ. Halle Math. Nat. VIII(6):1077-1084.

Deubert, K. H. 1959. "Über die Bedeutung der Nematodenfauna ackerbaulich genutzter Böden." Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene. Abteilung 2. 112(1/5):101-108. Effect of various manures, potato haulms, inorganic fertilizers, pH and nitrogen in soil, on nematode population indexed from abs.

- Deubert, K. H. 1960. "Untersuchungen über das Auftreten freilebender nematoden in Fruchtfolgen (Vorläufige Ergebnisse)." Nematologica 50th. International Symposium at Uppsala - August. 1959. Supplement II, p. 28.
- _____. 1960. "Über den Einfluss landwirtschaftlicher Kulturpflanzen auf die freilebenden nematoden." Zentbl. f. Bakt., Parasitenkunde, Infektionskrankheiten u. Hygiene, II. Abt. (Jena). 113(11/15?):340-344.
- Di Edwardo, A. A. 1960. "Time-lapse studies of movement, feeding, and hatching of *Pratylenchus penetrans*." Phytopathology 50(8 - part I):570-571.
- Dieter, Alfred. 1955. "Vergleichende experimentelle Untersuchungen an zoophagen und phytophagen nematoden." Wissenschaft. Zeitsch. Martin-Luther-Univ. Halle-Wittenberg (Math. Nat.). 5(2):157-186.
- Dieter, A. 1959. "Über eine einfache methode zur Prüfung von Kulturböden auf den Besatz mit freilebenden parasitischen nematoden." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg Wiss. Z. Univ. Halle. Math. Nat. VIII(4/5): 538-539.
- Dieter, Alfred. 1959. "Über aspektfolgen parasitischer Nematodenarten in baumschulmässig genutzten Böden." Wiss. Ztschr. der Martin-Luther-Univ. Halle Wittenberg. Math. Nat. VIII(6):1099-1102.
- Dieter, A. 1959. "Eine einfache Methode zur Prüfung von Böden auf den Besatz mit freilebenden parasitischen Nematoden." Nachrichtenblatt für den Deutschen Pflanzenschutzdienst, N. F. Berlin. 13(10):195-196. A simple method for the testing of soil with regard to infestation with free-living parasitic nematodes.
- _____. 1959. "Beobachtungen über *Heterodera major* O. Schm. an Hafer." Nachrichtenbl. f. den Deut. Pflanzenschutzdienst. Berlin. 14(3):43-48.
- Diker, Tekin. 1959. "Türkiyede seker pancarı nematodunun *Heterodera schachtii* Schmidt, 1871 yayılış durumu ve alınması lüzumlu tedbirler." Seker (Ankara) 9(34):9-14. English summary. How the nematode spreads over the Turkish sugar beet *H. schachtii* Schmidt, 1871 and the necessary preventive measures.
- Rimitrova, E. & Karatoteva, T. 1958. "The effect of ultra-sound on *Trichinella* in the muscles." (In Russian) Ceskoslovenska Parasitologie. 5(2):47-49.
- Dolliver, J. S., D. G. Clark, and W. F. Mai. 1960. "Relationships of population increase of *Pratylenchus penetrans* to vegetative growth of Wando peas." Phytopathology. 50(4):239.
- Domurat, Krystyna and Henryk Sandner. 1960. "Wyniki wstępnych badań nad fauną nicieni zyta." (Results of preliminary researches over fauna of rye nematodes). Ekologia Polska Seria B. Tom VI - Zeszyt 1:57-63. 47 plants analysed from 3 rye fields previously cropped to potato, rye and fallow, and list of 13 plant-parasitic and saprophagous species given. *Aphelenchoides parietinus* and *Eucephalobus elongatus* were most often found on all 3 analysed



cultures. Data from this work shows that previous crop exerts distinct influence on the fauna of rye nematodes, both as to species and numbers. Indexed from English summary, and species listed, and not all 15 saprophagous species put in host file.

Dona'dalle Rose, A. 1959. "Sugar beet nematode; observations on the biology of *H. schachtii* in the Po Valley." In Italian. Agr. delle Venezie 13(7/8): 334-340.

Dona'dalle Rose, A. 1959. "Nematode della Barbabietola." In Italian. Informatore Fitopatologico. IX(21):402-405.

 . 1959. "The sugar beet nematode. II." In Italian. Agr. delle Venezie 13(9):400-404. *Heterodera schachtii*.

Donaubauer, E. 1959. "Über Schäden durch nematoden in Österreichischen Forstpflanzgärten." Anz. f. Schädlingsk. 32(5):68-69.

Dropkin, Victor H. and Paul E. Nelson. 1960. "The histopathology of root-knot nematode infections in soybeans." Phytopathology 50(6):442-447.

Duddington, C. L. and Duthoit, C. M. G. 1960. "Green manuring and cereal root eelworm." Plant Path. 9(1):7-9. Control of *Heterodera avenae*. The effect of green manuring in reducing the initial eelworm invasion indicated by experiment in 1954 was confirmed in 1955. (*H. major* used in this article). Two nematode-trapping fungi were present, their numbers increased by treatment with green manure, but figures for assessment of predacious fungi activity are inconclusive.

Duggan, J. J. 1959. "On the number of generations of beet eelworm, *Heterodera schachtii* Schmidt, produced in a year." Nematologica. 4(4):241-244.

 . 1959. "Host range of cereal root eelworm *Heterodera major*. O. Schmidt 1930." Agr. Rec. 12:13-15,17,19-21.

 . 1960. "Effect of soil drying on the viability of *Heterodera major* cysts." Nature 185(4712):554-555.

Dunnett, J. M. 1960. "Potato breeders' strains of root eelworm *Heterodera rostochiensis* Woll." Nematologica - 50th International Symposium at Uppsala August 1959. Supplement II:84-94.

Efremenko, V. P. 1959. "On the study of potato nematodes in Lithuanian SSR and measures for their control." Trudy Gel'min. Lab. Akad. Nauk. SSSR. 9: 91-92. In Russian - indexed from title only, *Heterodera rostochiensis*.

Eglitis, V. K., and Kaktynia, Dz. K. 1959. "On Heteroderidae in Latvian SSR." Trudy Gel'min. Lab. Akad. Nauk. SSSR. 9:403-406. Host list of 98 species for root knot is given, and some 18 hosts of *Heterodera*s. *Heterodera scleranthii* n. sp. given, but no diagnosis. (In Russian).

Ellenby, C. and A. B. Gilbert. 1960. "Progress in the study of the physiology of the hatching factor of the potato root eelworm *Heterodera rostochiensis* Wollenweber." Nematologica - 50th International Symposium at Uppsala August 1959. Supplement II:106-111.



Ennis, W. B., Jr. 1960. "Use of herbicides growth regulators, nematocides, and fungicides." The Nature & Fate of Chemicals Applied to Soils, Plants and Animals, U. S. Dept. Agric. ARS. (ARS 20-9):17-27.

Esser, R. P. 1959. "Using plant-parasitic nemas for classroom study." Turtox News. 37(1):36-37. Comparative illustration of plant destructive nema and Ascaris - general article, no species mentioned.

 . 1960. "Three additional species in the genus Hemicriconemoides Chitwood and Birchfield 1957. Nemata: Tylenchida." Nematologica 5(1):64-71.

Estey, R. H. 1959. "Nematodes associated with a root disease complex of red clover on the Island of Montreal." Quebec Soc. Protect. Plants. Rpt. 40:150.

Everard, C. O. R. and William A. Feder. 1959. "Effective increase in nematode populations by the addition of Aureomycin." Nature (London) 184(4702) Supplement #24:1887-1888. Some control of bacteria in corn meal agar cultures of *Panagrellus* and *Rhabditis*.

Fairbairn, D. 1957. "The biochemistry of Ascaris." Experimental Parasitology. 6(5):491-554.

Fassuliotis, George and C. E. Williamson. 1959. "Criconemoides axeste n. sp. associated with roses in commercial greenhouses in New York State." Nematologica 4(3):205-210.

Faulkner, Lindsey Ralph. 1959. "Pathological histology, hosts and culture of the potato rot nematode." Dissertation Absts. 20(3):838.

Feder, William A., Everard, C. O. R. and C. L. Duddington. 1960. "Heterocaryotic nature of ring formation in the predaceous fungus *Dactylella doedycoides*." Science. 131(3404):922-924. Morphologically indistinguishable conidia of the predaceous nematode-attacking hyphomycete *Dactylella doedycoides* Drechsler vary in their ability to produce constricting rings, depending upon their heterocaryotic state. Three types are noted: those producing rings with or without stimulation, those never producing rings, and a mixed or wild type, made up of a mixture of the first two types. Saprophytic nematodes of the genera *Panagrellus* and *Rhabditis*, reared according to the method of Taylor et al (1957) Pl. Dis. Rptr. 41(6):527, were found to stimulate ring structure formation in *Dactylella doedycoides* after they had been air dried until dead and then rehydrated in small drop of water.

Feltz, H. 1959. "Das Stock- oder Stengelälchen *Ditylenchus dipsaci* (Kuhn) Filipjew als Rübenschädling." Z. f. die Zuckerindus. 9(1):24-25.

Fenne, S. B. 1959. "Summary of plant diseases in Virginia, 1959." Plant Dis. Repr. 43(12):1264-1265.

Fennel, William Edward III. 1959. "The natural history of *Dorylaimus stagnalis* Nematoda." Dissertation Absts. 20(5):1906.

Fenwick, D. W. and Maharaj, S. B. 1960. "Presence of *Aphelenchoides cocophilus* in the roots of *Cocos nucifera*, the coconut palm." Nature London 185(4708):259-260.

Fenwick, D. W. 1959. "Red ring of coconuts-a problem for the nematologist." Indian Coconut J. 12(3/4):82-86. Caused by *Aphelenchoides cocophilus*.

Ferris, J. M. and Bergeson, G. B. 1959. "Preliminary survey of plant-parasitic nematodes found in Indiana." Ind. Acad. Sci. Proc. 68:147.

Ferris, J. M. 1959. "A preliminary survey of plant-parasitic nematodes in Indiana." Ent. Soc. Amer., No. Cent. Br. Proc. 14:27. No hosts or locations given in this abstract, but 12 genera listed.

 . 1959. "Evaluation of populations relationship between soil nematode and soil insect surveys." Ent. Soc. Amer., No. Cent. Br. Proc. 14:69. Very short general statement.

Fidler, J. H., B. M. Church, and J. F. Southey. 1959. "Field sampling and laboratory examination of cereal root eelworm cysts." Plant Pathol. 8(1): 27-34. For routine examination of cyst populations, an examination of 200 g of soil taken from a well mixed bulk sample of 2500-5000g obtained from about 50 randomly located points in a field usually should prove sufficient. For the recovery of *Heterodera major*, the Fenwick apparatus, with the techniques presently used, is satisfactory for most purposes. Although the variation in results obtained from differences in detail of technique does not appear to be great, a standard procedure is recommended.

Fielding, Max J. 1959. "Nematodes in plant disease." Annual Review of Microbiology. 13:239-254. General review type article, no new work; not entered in species and host files. Discussions by genera groupings.

Finkner, R. E. and J. F. Swink. 1959. "Reaction of galactinol selected beet varieties in breeding for nematode resistance." Jour. Amer. Soc. Sugar Beet Technol. 10(5):403-423. Five varieties, each replicated 10 times, were tested in 1956 in a nursery heavily infested with the sugar beet nematode and in soil relatively free of this organism. Three of the varieties were selected for various grades of galactinol content based on dry substance of the juice (low, intermediate high, and high). The low galactinol selection yielded higher in both sucrose % and weight, in both tests, and had fewer cysts on the roots and showed less wilting than the intermediate or the high selections. Seven varieties, each replicated 14 times, were tested in 1957 in disease and disease free fields. Five of the strains were selected for various amounts of galactinol based on % of beet. No consistent results were obtained from these tests. It was concluded that selection based as % on beet was ineffective. In laboratory tests conducted by Rietberg the degree of wilting, caused by a suspension of nematode larvae in water, was considerably less for galactinol selections than for the high selection for both years.

Fletcher, Fred W. 1959. "Vidden D a new soil fumigant." Down to Earth. 15 (3):16. Vidden D is a trade name for a mixture of dichloropropenes and dichloropropanes. It is used as a pre-planting nematicide for such crops as sugar beets and potatoes. It is phytotoxic when applied directly to plants, but breaks down into chlorides and other relatively non-toxic residues in the soil.

Ford, H. W. 1959. "Promising rootstocks that tolerate the burrowing nematode." Proc. Florida State Hort. Soc. 72:96-102. Two sweet orange varieties and a citrange in addition to RL-A, RL-B and Clone X, which were reported tolerant in 1956, have been found to tolerate burrowing nematodes. Results of growing seedlings of candidate clones in spreading decline-infested soil, and inoculation of roots in Petri dishes indicate that the sweet orange variety Sanguine grosse ronde (P.I. No. 105014) is highly tolerant to the burrowing nematode. Growth was the same in infested and non-infested soil even though a population of burrowing nematodes was present on roots of plants in infested soil. Growth tests and nematode-survival studies indicate that Pineapple RS-156, a single tree in a row of ordinary Pineapple sweet orange trees, is resistant to the burrowing nematode under laboratory conditions. Plant growth was not reduced in infested soil, and the population of burrowing nematodes in the roots decreased to a low level. Carrizo citrange (C.P.B. 45019-B) is somewhat tolerant to injury from the burrowing nematode. Growth of plants was reduced only 8% although feeder root loss was occasionally as much as 33%. The clones here reported will be field tested before being officially recommended for planting in Florida citrus groves. Also W.A.Feder, & P. C. Hutchins are authors.

Ford, H. W., W. A. Feder and P. C. Hutchins. 1960. "Citrus varieties, hybrids, species and relatives evaluated for resistance to the burrowing nematode, *Radopholus similis*." Plant Disease Rept. 44(6):405.

Foster, H. H. and F. H. Smith. 1958 (Revised) "Peach orchard soil fumigation." South Carolina Agricultural Exp. Station Botany Department. Mimeo Series #4 7pp. Importance of root-knot nematode problem in South Carolina, S-37 being the only resistant rootstock recommended in South Carolina. Recommended chemical treatments and procedures are given.

Foster, H. H. 1960. "Identification and preplant control of parasitic nematodes attacking peach trees in South Carolina." Phytopathology. 50 (8)(Part I):575.

Franklin, Mary T. 1959. "Nacobbus serendipiticus n. sp., a root-galling nematode from tomatoes in England." Nematologica. 4(4):286-293.

Franklin, Mary T., and David J. Hooper. 1959. "Plants recorded as resistant to root-knot nematodes *Meloidogyne* spp." Tech. Communication #31 of the Commonwealth Bureau of Helminthology St. Albans, Herts. 1-33.

Franklin, Mary T., G. Thorne, & M. Oostenbrink. 1959. "Proposal to stabilise the scientific name of the cereal-root eelworm (class nematoda). Z.N.(S.)375." Bulletin of Zoological Nomenclature. 17(pts.3-5):76-85.

French, Norman E. P. Lichtenstein, and G. Thorne. 1959. "Effects of some chlorinated hydrocarbon insecticides on nematode populations in soils." Jour. Econ. Ent. 52(5):861-865. DDT applied in the laboratory to a loam soil at the rate of 600 and 1000 lbs./6" acre had no effect on nematodes 24 days after treatment, whereas lindane at 200 lbs./6" acre caused an 85% reduction of the total population, a 99% reduction of *Aphelenchus avenae* and *Acrobeloides* spp., and an 85% reduction of *Dorylaimus* spp. These differences were all significant. *Rhabditis* spp. or *Psilenchus* spp. were not affected. Field investigations



with heptachlor applied to a Carrington loam at 25 and 125 lbs./acre and aldrin at 25 lbs./acre showed that 5 weeks after treatment no significant effect on the nematode populations was obtained. Miami silt loam plots were treated with aldrin, DDT, and lindane in 1954 and investigated in 1957 and 1958 to study the long-term effects of these insecticides on nematode populations. Aldrin applied at rates up to 200 lbs./6" acre in 1954 (24.6 lbs./acre present in fall of 1957) had no effect. Significant differences in nematode populations were found between the untreated soils and the plots that had been treated with DDT at a rate of 1000 lbs./6" acre in 1954 (604 lbs./acre present in the fall of 1957) and lindane at 100 lbs./6" acre in 1954 (33.5 lbs. in the fall of 1957). The lower rates of application had no effect. A saprophagous species *Chiloplacus symmetricus* was always significantly more numerous on both the DDT-treated (1000 lbs./acre) and lindane-treated (100 lbs./acre) plots. Nematodes of the order Tylenchida were not numerous on the lindane-treated plot. From these investigations it seems that only some chlorinated hydrocarbon insecticides or their breakdown products influence nematode populations as a result of their direct or indirect effect on certain species or groups. Saprophagous species were often increased in number. Parasitic nematodes were often reduced slightly in numbers, but as few were found it was impossible to draw any conclusion. Under field conditions, however, the nematode population was not seriously affected by the insecticides.

Gadea, E. 1958. "Nematodes libres muscicolas de las Islas de Cabo Verde y Madeira." "Moss dwelling free Nematoda from the Cape Verde and Madeira Islands." *Miscelanea Zool.* 1(1):39-50. Illus. 1958. A score of species, most of them cosmopolitan. A sp. of *Wilsonema* is perhaps undescribed, but no new name is proposed.

Gaines, J. G. 1960. "Control of flue-cured tobacco diseases, 1949-59." Georgia Agricultural Research. 1(3):10-11. Soil fumigation.

Gandara, G. 1920. "Enfermedades y Plagas del Naranjo." *Bol. Secretaria de Agricultura y Fomento.-Direccion de Agricultura.* (n.s.)#111:41pp. Contoura cop., p.1-7, 15-16, Fig. 17-18, dealing with nematodes: *Nematol.* Investigations.

Gaumann, E. and Jaag, O. 1947. "Die physiologischen Grundlagen des parasitogenen Welkens. II. (The physiological basis of wilt caused by parasites. II.)" *Trans. Schweizerische Botanische Gesellschaft Berichte* (Switzerland). 57: 132-148.

Gerlach, S. A. 1958. "Die mangroveregion tropischer Küsten als Lebensraum." *Zeitschrift für Morphologie und Ökologie der Tiere.* 46(6):636-730. Gerlach gives a thorough general analysis of the fauna of mangrove regions in relation to environmental conditions, taking as his focal point his study of the mangrove areas of Cananeia, Sao Paulo, Brazil. He discusses the topography, the vegetation, the climate, and soil profiles in relation to salinity. The ecological analysis of the fauna is concerned mostly with nematodes, which are grouped in relation to five characteristic environments within the mangrove region. There is a lengthy discussion of the influence of environmental factors on the fauna and of the mangrove swamp as environment in comparison with the shallows.

Gemma, T., and Shibuya, T. 1959. "On the nematode parasites of the root cortex of lowland rice in Tagawa Province, Yamagata-Ken. (In Japanese)." *Yamagata Agr. & Forestry Soc. J.* 14:11-14. English summary. Morphological and ecological



studies - no species mentioned in summary, but *H. schachtii* (1 strain), *Aphelenchoides besseyi* and *Radopholus oryzae* are mentioned in text.

Gerlach, S. A. 1958. "Die Nematodenfauna der sublitoralen Region in der Kieler Bucht." *Kieler Meeresforschungen*. 14(1):64-90.

_____. 1958. "Deuxieme contribution a la faune des nematodes des eaux interstitielles littorales de Madagascar. Second contribution to the nematode fauna of the littoral of Madagascar." *Mem. Inst. Sci. Madagascar Ser. F. Oceanogr.* 2:343-365. The author described this fauna in relation to geographic distribution noting that Madagascar had been isolated from the African continent after the middle of the Jurassic. Thirty species are known from Madagascar, Reunion and Maurice Islands, which include *Trefusia cornea*, *Enoplus sacculus*, *Oncholaimus malgassus* and *Tripyloides brevis*, 4 new species. Seventeen had been known from European, Brazilian and/or San Salvador waters. This information supported the hypothesis that such marine forms had cosmopolitan distribution.

Giamalva, Mike J., W. J. Martin and Teme P. Hernandez. 1960. "Reaction of 8 sweet potato selections to 5 species of root-knot nematodes." *Phytopathology*. 50(8-Part I):575.

Gillard, Andre and van den Brande. 1959. "Essais de lutte contre les nematodes des racines (*Meloidogyne* spp.) au moyen de chauffage electrique du sol." IV Congress International de Lutte contre les Ennemis des Plantes Hambourg 1957. I:623-627. (Indexed from English summary: Experiments on the control of root-knot nematodes by means of electrical soil heating. System of electrically heating soil by means of chicken wire (which is widely used in horticulture for forcing witloof-chicory and for rooting azalea and ficus cuttings) for partial soil sterilization and particularly for controlling the root-knot nematode. A lethal temperature of 50°C during 1 hour is advocated. Recommend treatment at the end of August or the beginning of September when desired temperature is reached with minimum of cost.

Goffart, H. 1959. "Methoden zur Bodenuntersuchung auf nichtzystenbildende Nematoden." *Nachrbl. des Deut. Pflanzenschutzdienstes*. 11(4):49-54. English summary. Methods for extraction of noncyst-forming nematodes is described Baermann, Seinhorst, Christie and Perry, and Oostenbrink techniques are reviewed, apparently.

Goffart, Hans. 1959. "Bericht über das 4. Internationale Symposium für Nematologie." *Verhandlungen des IV. Internationalen Pflanzenschutz-Kongresses*. 1:571-573. A Symposium for Nematology - the people who attended and what they reported on. Not indexed for species or hosts.

Goffart, H. 1959. "Reaktionserscheinungen von Boden und Pflanzen nach Anwendung von Shell D-D." *Mitt aus der Biol. Bundesanstalt für Land-und Forstw., Berlin-Dahlem*, Heft 97:121-124. Re: Toxicity studies.

_____. 1959. "Über *Heterodera trifolii* Goffart 1932 Nematoda: Heteroderidae an Nelken." *Die Gartenbauwissenschaft*. 24(6) Band Heft 1:104-107. *H. trifolii* observed on *Dianthus hedewigii*. (=*D. chinensis* var. *hedewigii*). Identity given by morphological data and inoculations. Infected plants showed no visible symptoms. A list of hosts infected by *H. trifolii* is given.



Goffart, H. 1960. "Populationsveränderungen des Kartoffelnematoden (*Heterodera rostochiensis* Woll.) Beim Anbau Nematoden-Resistenter und Nematoden-anfalliger Kartoffelsorten unter Berücksichtigung des Auftretens Aggressiver Biotypen." *Nematologica* - 50th International Symposium at Uppsala August, 1959. Suppl. II:76-83.

_____. 1960. "Rückblick über die Entwicklung des Instituts für Hackfruchtkrankheiten und Nematodenforschung." Mitt. aus der Biol. Bundesanstalt für Land-und Forstwirtschaft Berlin-Dahlem. 99:5-14. History of the development of the Institute for truckcrop diseases and nematode research with bibliography of publications from 1948 to 1959.

_____. 1960. "Phytonematologie in Deutschland." Mitt. aus der Biol. Bundesanstalt für Land-und Forstwirtschaft Berlin-Dahlem. 99:14-24. General article on plant nematology in Germany, with photos of Kühn, Wollenweber and Baunacke. List of 49 species and common name hosts not entered in species and host files.

_____. 1960. "Die taxonomische Bewertung morphologisch-anatomischer Merkmale bei den Zysten der Gattung *Heterodera* Nematoda." Mitt. aus der Biol. Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem. 99:24-51. Taxonomic evaluation of morphological-anatomical characteristics of cysts of *Heterodera*, excellent photos of cyst walls, vulva cones, etc.

Gofman-Kadoshnikov, P. B., Khoroshcho, E. V., and Smirnev, M. I. 1955. "Significance of chemical factors in migration of nematodes." Doklady Akad. Nauk. SSSR. 103:1127-1130.

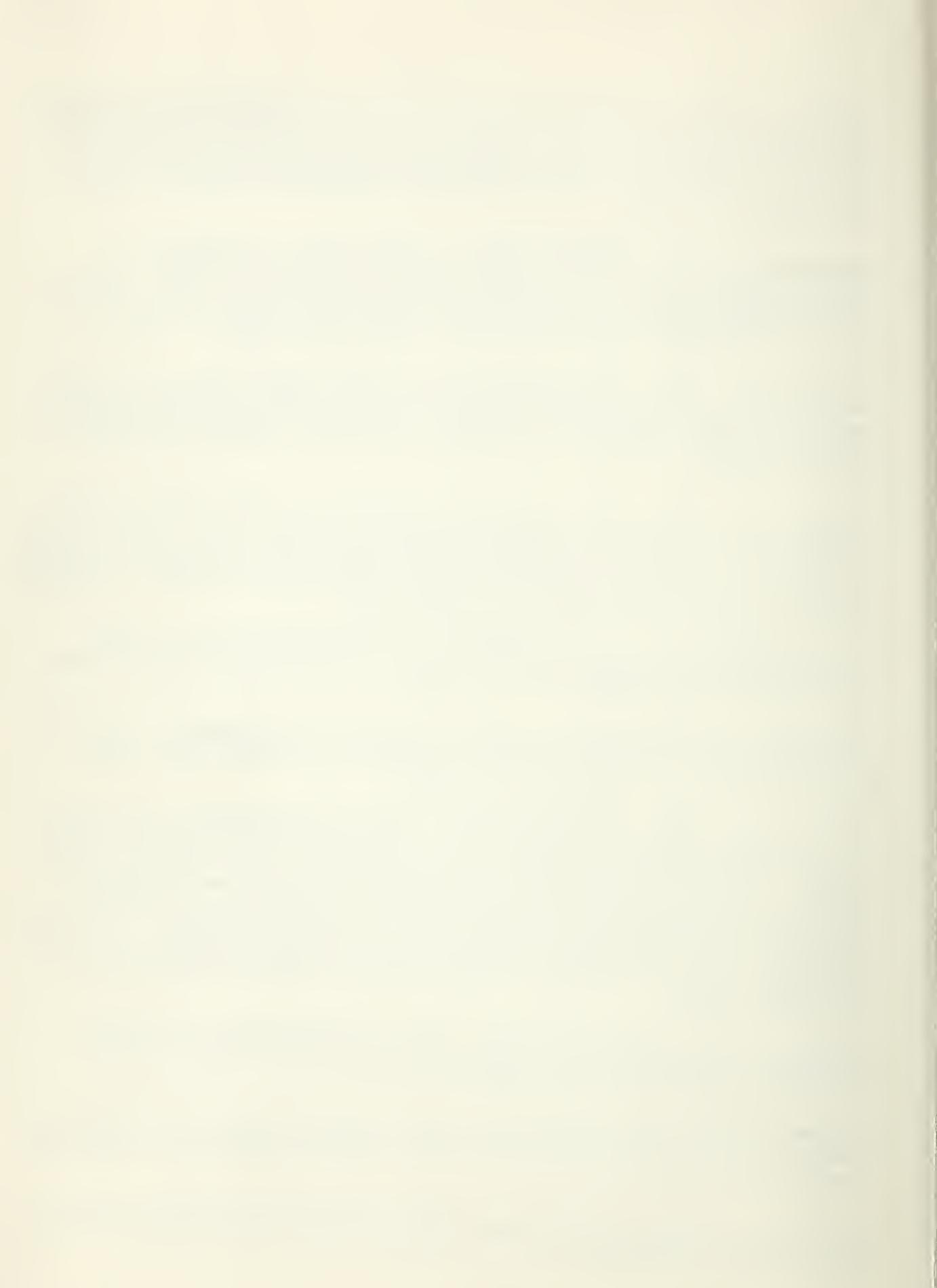
Goidanich, G. and Garavini, C. 1959. "Mortality of *Saintpaulia jonica* by infestation with *Meloidogyne arenaria* Thamessii." In Italian. Riv. della Ortofiorofrutticol. Ital. 43(9/10):381-385.

Golden, A. M. 1959. "Susceptibility of several Beta species to the sugar-beet nematode *Heterodera schachtii* and root-knot nematodes *Meloidogyne* spp." J. Amer. Soc. Sugar Beet Technologists 10(5):444-447. Of 9 different Beta species examined in the greenhouse for susceptibility to the sugar-beet nematode, 6 were found to be very susceptible and 3 species B. patellaris, B. procumbens, and B. webbiana were shown to be highly resistant. In another greenhouse test, these same 3 species proved to be quite susceptible to all of the 6 species and subspecies of root-knot nematodes known to occur in the United States.

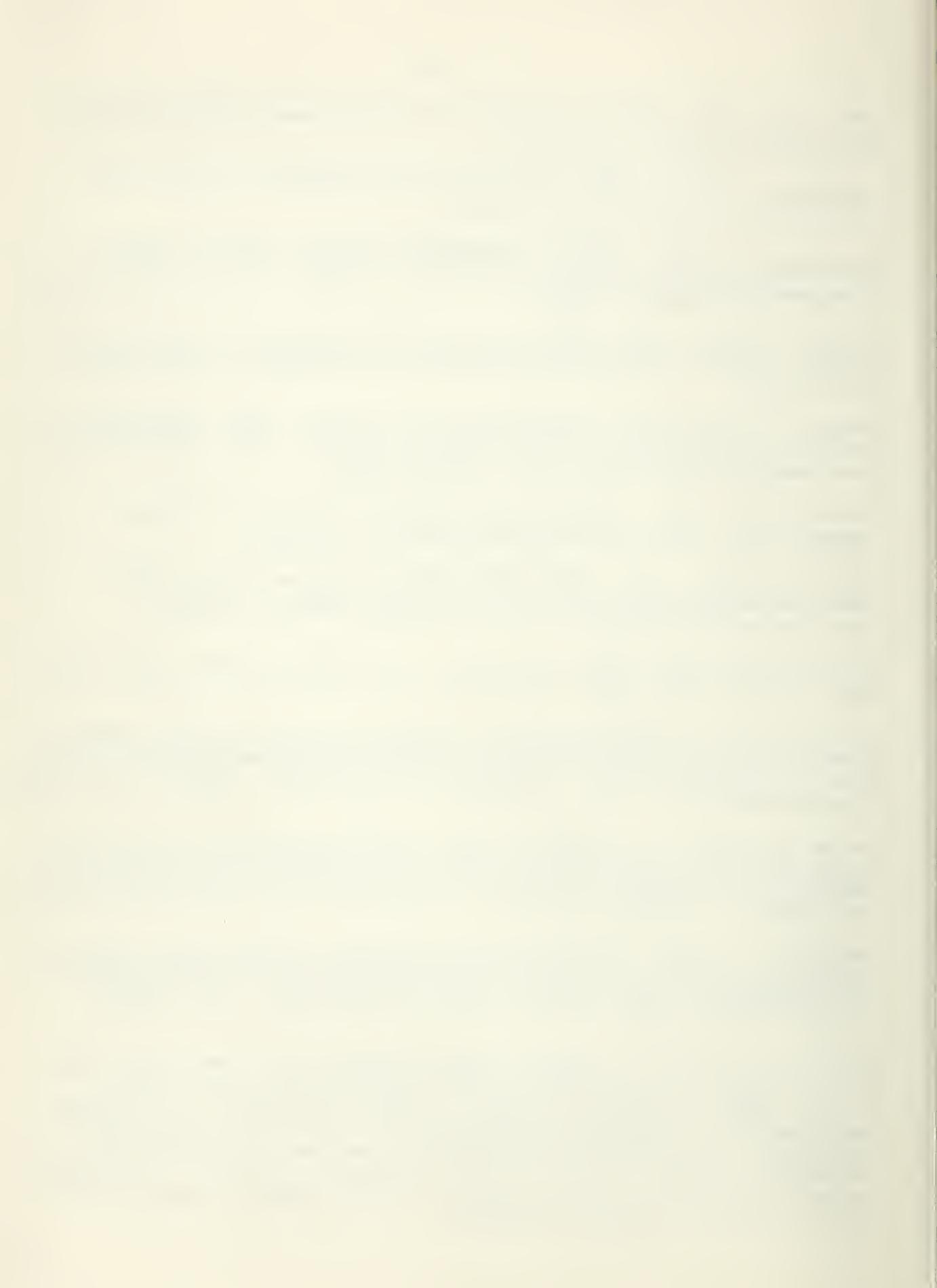
Golden, A. Morgan and Thelma Shafer. 1959. "Susceptibility of tomato *Lycopersicon esculentum* to the sugar-beet nematode *Heterodera schachtii*." Plant Dis. Repr. 43(11):1196-1197.

Golden, A. Morgan and Thelma Shafer. 1959. "Host-parasite relationships of various plants and the sugar-beet nematode *Heterodera schachtii*." Plant Dis. Repr. 43(12):1258-1262.

_____. 1960. "Survival of emerged larvae of the sugar-beet nematode *Heterodera schachtii* in water and in soil." *Nematologica*. 5(1):32-36.



- Good, J. M. 1960. "Plant nematodes and soil management systems." Georgia Agricultural Research. 1(3):3-5,12.
- . 1960. "Plant nematodes and soil management systems." Soil Conservation (USDA). 25(11):249-251,259.
- . 1960. "Control of nematodes in Peach orchards." Georgia Agricultural Experiment Stations University of Georgia College of Agriculture. Mimeograph Series N.S. 104:9pp.
- Goodey, J. Basil. 1959. "Data to be considered, observed and, where possible, reported upon when presenting descriptions of new species." Nematologica. 4(3):211-216.
- Goodey, J. Basil, Mary T. Franklin & David J. Hooper. 1959. "Supplement to - The nematode parasites of plants catalogued under their hosts 1955-1958." Commonwealth Agricultural Bureaux - England. 66pgs.
- Goodey, Basil. 1959. "Gall-forming nematodes of grasses in Britain." Journal of the Sports Turf Research Institute. 10(35):1-7.
- Goodey, J. Basil. 1960. "Rhadinaphelenchus cocophilus (Cobb, 1919) N. Comb., the nematode associated with "red-ring" disease of coconut." Nematologica. 5(2):98-102.
- Goodey, J. B. 1960. "The classification of the Aphelenchoidea Fuchs, 1937." Nematologica. 5(2):111-126.
- Goodey, J. B., F. C. Peacock, and R. S. Pitcher. 1960. "A redescription of Xiphinema diversicaudatum Nicoletzky, 1923 and 1927 Thorne, 1939 and observations on its larval stages." Nematologica 5(2):127-135. Material from various locations compared.
- Goodey, J. B. and J. W. Seinhorst. 1960. "Further observations and comments on the identity of Rotylenchus robustus De Man, 1876 Filipjev, 1934 with a description of a proposed neotype and a new definition of Rotylenchus goodeyi." Nematologica. 5(2):136-148.
- Goodey, J. B. 1960. "Observations on the effects of the parasitic nematodes Ditylenchus myceliophagus, Aphelenchoides composticola and Paraphelenchus myceliophthorus on the growth and cropping of mushrooms." Ann. Applied Biology. 48(3):655-664.
- Goplen, B. P., and E. H. Stanford. 1959. "Studies on the nature of resistance in alfalfa to 2 spp. of root-knot nematodes." Agron. Jour. 51(8): 486-488. Illus. An example is reported in which penetration of Meloidogyne hapla larvae into resistant alfalfa plants was totally inhibited. A grafting analysis established that this resistance was not due to a translocated top-produced compound, but was an inherent property of the root. In contrast, nematode larvae of *M. javanica* *javanica* did enter plants resistant to this species, but were not able to reproduce.



Gordon, Malcolm S. 1960. "Anaerobiosis in marine sandy beaches." Science 132(3427):616-617. Re:"nematodes probably are the most abundant and varied group...."

Gorlenko, M. V., Kondakova, E. I., and Pletneva, O. I. 1959. "On the biology of predacious fungi." In Russian. Moskov. Obshch. Isp. Prirody. B. Otd. Biol. 64(5):89-97. English summary. With reference to nematode control.

Graf, A. E. Keller, H. Liechti and Dr. A. Savary. 1960. "Das Rübenkopfälchen." Mitt. für die Schweizerische Landwirtschaft. 8(3):33-45. Re: Ditylenchus of Beta vulgaris vars. in Switzerland survey and control.

Graham, T. W., and H. E. Heggestad. 1959. "Growth response and root decay development in certain tobacco varieties and breeding lines infected with root lesion nematodes." Tobacco New York 149(20):21-28. (Section Tobacco Science, III:172-178. Flue cured and other tobaccos including breeding lines were grown in comparative trials in the greenhouse and in the field in soil infested with the root-lesion nematode, *Pratylenchus brachyurus* and in nematode-free soil. Plants growing in infested soil were measured in height, root weight, top weight, and in severity of nematode root decay to evaluate degrees of possible resistance to this nematode. Root decay was most critical in measuring levels of tolerance; however, certain growth measurements were of value. Relatively larger populations of *P. brachyurus* were recovered from the roots of the variety Hicks than the breeding line Bel-549E, although root decay was most severe in the latter. Greenhouse tests were more critical than field tests and some varieties showing tolerance in the field were severely damaged in the greenhouse. Certain Canadian flue-cured varieties, American burleys, flue-cured, cigar-wrapper, and other tobacco types previously reported as tolerant to the root lesion nematode were susceptible in these tests. Highest levels of tolerance were found in 2 breeding lines derived from hybrids involving the *Nicotiana sylvestris* X *N. tomentosiformis* allopolloid.

Graham, T. W. 1960. "A root-knot-resistant tobacco breeding line released to breeders." Phytopathology. 50(8-Part I):575-576.

Grainger, J. 1959. "Effects of diseases on crop plants." Outlook on Agriculture, London. 2(3):111-121.

. 1959. "Disease control through intimate mixing of mercuric oxide with soil." Phytopathology. 49(10):627-633.

. 1959. "Population studies and successful control of the potato root eelworm." European Potato Jour. 2(3):184-198. Field methods for the control of potato root eelworm *Heterodera rostochiensis* bring fairly predictable percentage decreases in the population available to attack potato roots, but are only economically successful when applied to the lower soil populations. Successful treatment must be capable of lowering the

population to the equivalent of 0.3 cysts with contents per g of soil when a reasonably large increase in yield and a substantially diminished production of new, persisting cysts could both be expected. A graph giving the upper limits of population which can be reduced to the equivalent of 0.3 viable cysts per g of soil by different percentage degrees of control is given. Populations too high for direct treatment can be reduced to controllable levels by natural wastage of the persisting cyst population in the absence of potatoes. The annual decrement of natural wastage is a uniform percentage which in Britain varies from 18 to 60 according to temperature. A forecast chart of the persistence of eelworm populations in a viable state is also given and practical implications are considered.

Grainger, John. 1960. "Safety in soil treatments for eelworm control." Nematologica - 50th International Symposium at Uppsala, August 1959. Supplement II:6-12. Review-type article on injection, soil drenching, surface mixing, etc. with illustrations.

Grochmalicki, J. 1911. "Trilobus lomnickii nov. spec. nowy gatunek nicienia z Siwej Wody. (Trilobus lomnickii nov. spec. neue Nematoden-Art aus der Siwa-Woda)." German summary. Kosmos (Lw&w). 36:372-376.

Grujicic, G. 1958. "Heterodera schachtii Schmidt - a beet nematode in our country." (In Serbo-Croatian) Zastita Bilja 49/50:167-174. English summary. Chiefly sugar beets.

_____. 1959. "A contribution to the study of beet nematode (Heterodera schachtii Schmidt)." (In Serbo-Croatian) Arh. za Poljoprivedne Nauke 12(36): 128-133. English summary. Re: effect of juices in sugar beet, fodder beet, beet root and cabbage, on hatching of larvae.

Hackaylo, E. and John G. Palmer. 1957. "Effects of several biocides on growth of seedling pines and incidence of mycorrhizae in field plots. Plant Dis. Repr. 41(4):354-358.

Hague, N. G. M. and W. C. Clark. 1959. "Fumigation with methyl bromide and chloropicrin to control seed-borne infestation of the stem eelworm *Ditylenchus dipsaci* on Lucerne *Medicago sativa*." Mededelingen van de Landbouwhogeschool en de Opzoekingstations van de Staat de Gent. XXIV(3-4):628-636.

Hague, N.G. M. 1960. "Control of plant-parasitic nematodes. 3. The final eelworm density in soil as a means of assessing the efficacy of a fumigant." Nematologica - 50th International Symposium at Uppsala August 1959. Supplement II:13-21. This method is suitable for cyst-forming species with one complete generation per year - methyl bromide used as fumigant.

Hanf, E. 1959. "Auftreten der Wurmfäule an Rüben durch *Ditylenchus dipsaci* in Süddeutschland im Jahre 1958." Pflanzenschutz 11(7):104-105.

Hansen, Eder Lindsay, Yarwood, E. A., Nicholas, W. L. and Francis W. Sayre. 1960. "Differential Nutritional requirements for reproduction of two strains of *Caenorhabditis elegans* in Axenic culture." Nematologica. 5(1): 27-31.

Harrison, B. D. and C. H. Cadman. 1959. "Role of a dagger nematode *Xiphinema* sp. in outbreaks of plant diseases caused by *Arabis mosaic virus*." Nature. 184(4699):1624-1626. (Rothamsted Exptl. Sta. Harpenden, Hertfordshire, England).

Harrison, Martin B. 1959. "The retention in the soil of nematocides toxic to golden nematode." Phytopathology 49(9):540.

Hartwell, W. V., R. V. Dahlstrom and A. L. Neal. 1959. "Crystallization of a natural hatching factor for larvae of the golden nematode." Phytopathology. 49(9):540-541.

. 1960. "A crystalline hatching stimulant for the golden nematode." Phytopathology. 50(8-Part I): 612-615.

Hasbrouck, E. R. and W. R. Jenkins. 1960. "Morphological variation in *Tylenchorhynchus claytoni*." Phytopathology. 50(8 - Part I):571.

Hemwall, John B. 1959. "A mathematical theory of soil fumigation." Soil Science. 88(4):184-190.

D'Herde, J. and J. Van den Brande. 1959. "Een Nieuwe Machine Voor Bodem-fumigatie Proefuitslagen ter Illustratie." Mededelingen van de Landouwho-geschool en de Opzoekingsstations van de Staat te Gent. XXIV(3-4):637-644. A new applicator for soil fumigants. Results of trials for illustration. This apparatus allows a correct distribution of very low (1 litre and less/acre) and normal doses of fumigants on the desired depth in the soil. The mechanism by which the rate of flow of the liquid is controlled is of a simple construction changes in flow due to speed modifications are eliminated. Two prototypes are described.

D'Herde, J., J. van den Brande, and A. Gillard. 1960. "Control of *Pratylenchus penetrans* (Cobb), causal agent of rootrot in lilies." Nematologica - 50th International Symposium at Uppsala - August 1959. Supplement II:64-67. Treatment with DD resulted in decrease of population in roots and soil, but remaining eelworms enough to cause damage. Hot-water-treatment at 46°C for 20 minutes was efficacious.

Hesling, J. J. 1959. "Some observations on the cereal-root eelworm population of field plots of cereals with different sowing times and fertilizer treatments." Annals of Applied Biology. 47(3):402-409. Re: *H. major* on oats, wheat, barley and rye.

Heyns, J. 1959. "More farmers using E.D.B. to control eelworm." Farming So. Africa 35(4):44-46. On tobacco. Re: "eelworm" - rootknot evidently meant from illustration.

Hildebrand, E. M. 1959. "Importance of microscopic openings in vector transmission of plant viruses and bacteria." Plant Dis. Repr. 43(7):715-718.

Hills, L. D. 1959. "Towards natural plant defence; the approach of the Henry Doubleday Research Association." *Mother Earth* 10(8):688-691. Chiefly nematocides and fungicides from plants.

Hoepli, R. J. C. and Chu, H. J. 1932. "Free-living nematodes from hot springs in China and Formosa." *Hong Kong Naturalist*. Supplement 1:15-28. Including 27 figures.

Hollis, J. P. and L. S. Whitlock. 1934. "Greenia orientalis (Corrigendum)." *Hong Kong Naturalist*. 5(2):161.

Hollis, J. P. and L. S. Whitlock. 1959. "Variants of *Tylenchorhynchus martini* and *T. ewingi*." *Phytopathology* 49(9):541.

Holmes, J. L. 1958. "Nematodes--a review and questions." (Condensed) Midwest Region. Turf Conf. Proc. 1958:58-61. Review type article, with accent on turf problems-nothing new.

Holton, C. S., G. W. Fischer, R. W. Fulton, Helen Hart, and S. E. A. McCallan. 1959. "Plant pathology: problems and progress 1908-1958." xix+588p. Illus. Published for the American Phytopathological Society by the University of Wisconsin Press, Madison 1959. This is a collection of the papers presented at the Golden Anniversary meeting of the American Phytopathological Society, August 24-28, 1958. The more than 50 papers presented are divided into ten sections in this volume, under the following classifications: Major addresses on historical and developmental aspects of plant pathology; Symposium on the physiology of parasitism; Symposium on genetic approach to elucidation of mechanisms governing pathogenicity and disease resistance; Symposium on fungicides; Symposium on the chemistry of fungicides, Symposium on soil microbiology and root disease fungi; Symposium on concepts and problems of nematology, Symposium on the structure of viruses; Symposium on the multiplication of plant viruses; and, Symposium on epidemiology of plant diseases. Abstracts of articles in this volume will be found in the appropriate sections of Biological Abstracts.

Hopper, B. E. and W. H. Padgett. 1960. "Relationship of nemas (Nematodes) with the root rot of pine seedlings at the E. A. Hauss State Forest Nursery, Atmore, Alabama." *Plant Dis. Repr.* 44(4):258-259. Experimental evidence strongly indicates that fungal pathogen and not *Tylenchus* sp. is the cause of root rot of pine seedlings.

Hoyos, F. Graf. 1959. "Beobachtungen über das Auftreten von Alchen und Erdbeerkulturen im Keilberger Erdbeeranbaugebiet." *Pflanzenschutz*. 11(6): 85. Eelworms on strawberries.

Hu, C. H. and Chu, H. T. 1959. "The preliminary report of investigation on nematodes in sugar cane field in Taiwan." (In Chinese) Taiwan Sugar Expt. Sta. Rpt. 19:35-51. English summary. Survey of nematodes, with illustrations of various types. Four gen., 6 species given, and 8 more genera have been

found in Taiwan associated with sugarcane and sugar beet from 13 farms - 12 genera altogether.

Huijsman, C. A. 1959. "Nature and inheritance of the resistance to the potato root-eelworm, *Heterodera rostochiensis* W. in *Solanum kurtzianum*." Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent. XXIV(3-4):611-614.

Hung, Yuan-ping. 1959. "An investigation of the white-tip disease of rice in Taiwan." The Plant Protection Bulletin. 1(4):1-4 plus illustrations.

Hutchinson, M. T. 1960. "Resistance and tolerance of tea to nematodes." Tea Quarterly. 31(Part I):1-6 (13-18?).

Hutchinson, M. T., J. P. Reed and D. Pramer. 1960. "Observations on the effects of decaying vegetable matter on nematode populations." Plant Disease Rept. 44(6):400-401. Barley field in New Jersey.

Hutchinson, M. T. and H. T. Streu. 1960. "Tardigrades attacking nematodes." Nematologica. 5(2):149. Short note on unidentified tardigrades found attacking *Trichodorus aequalis* and *Tylenchus* sp. in soil around wild blueberry in New Jersey.

Hutchinson, M. T., J. P. Reed, and S. R. Race. 1960. "Nematodes stunt blueberry plants." New Jersey Agriculture. 42(4):12-13. Survey found 3 out of 16 species associated with blueberries in sufficient numbers to cause possible damage. Treatments of VC-13 were effective.

Hyman, L. H. 1959. "Further remarks on the word nema." Systematic Zoology 8(1):57. *Nema* is a valid generic name of a beetle (Dejean, 1821), therefore this word should not be used for nematode.

Immel, R. 1957. "Schadauftreten von nematoden in forstpflanzgärten." Anz. f. Schädlingsk. 30(6):88-90. Coniferae.

s'Jacob, J. J. 1959. "Hoplotylus femina n.g., n.sp. (Pratylenchinae: Tylenchida) associated with ornamental trees." Nematologica 4(4):317-321.

. 1960. "Der Einfluss Einiger Gewächse auf die Population von *Meloidogyne hapla*." Nematologica - 50th International Symposium at Uppsala August 1959. Supplement II:141-143.

Jacob, J. S., J. A. van Berkum, and D. Guevara. 1959. "Tylenchorhynchus parvus Allen, 1955 (Nematoda: Heteroderidae) hallada por primera vez en Europa en muestras de suelo de Granada Espana." "T. parvus (Nematoda), reported for the first time from Europe in soil samples collected near Granada, Spain." Rev. Iberica Parasitol. 19(4):427-428. The soil nematode *Tylenchorhynchus parvis* is reported for the first time from European soils, near Granada, Spain. *T. maximus* and *T. nanus* were also present in these samples. One sample of orchard soil contained such numbers of cysts of the



plant parasite *Pratylenchus minyus* as to be potentially a source of infection. *H. trifolii*, *H. avenae*, and other genera listed also associated with potato, beet, lettuce and olive.

Jacobsen, A. 1960. "The alfalfa nematode is spreading." (In Danish.) Dansik Landbr. 79(4):96-97.

Jarman, M. 1959. "Electrical activity in the muscle cells of *Ascaris lumbricoides*." Nature (Supplement #16). 184(4694):1244.

Jensen, H. J. 1960. "Current status of nematodes in peppermint." Oreg. Essential Oil Growers League. Proc. 11:8-9. Re: "mint nematode", and root-knot nematode.

JHA, A., and Posnette, A. F. 1959. "Transmission of a virus to strawberry plants by a nematode (*Xiphinema sp.*)."
Nature (London). 184(4691): 962-963.

Joglar, F. 1959. "Nematode; grower's enemy--some easy steps for his control." Tobacco (New York) 149(26):18-19, 31-32. *Heterodera marioni*.

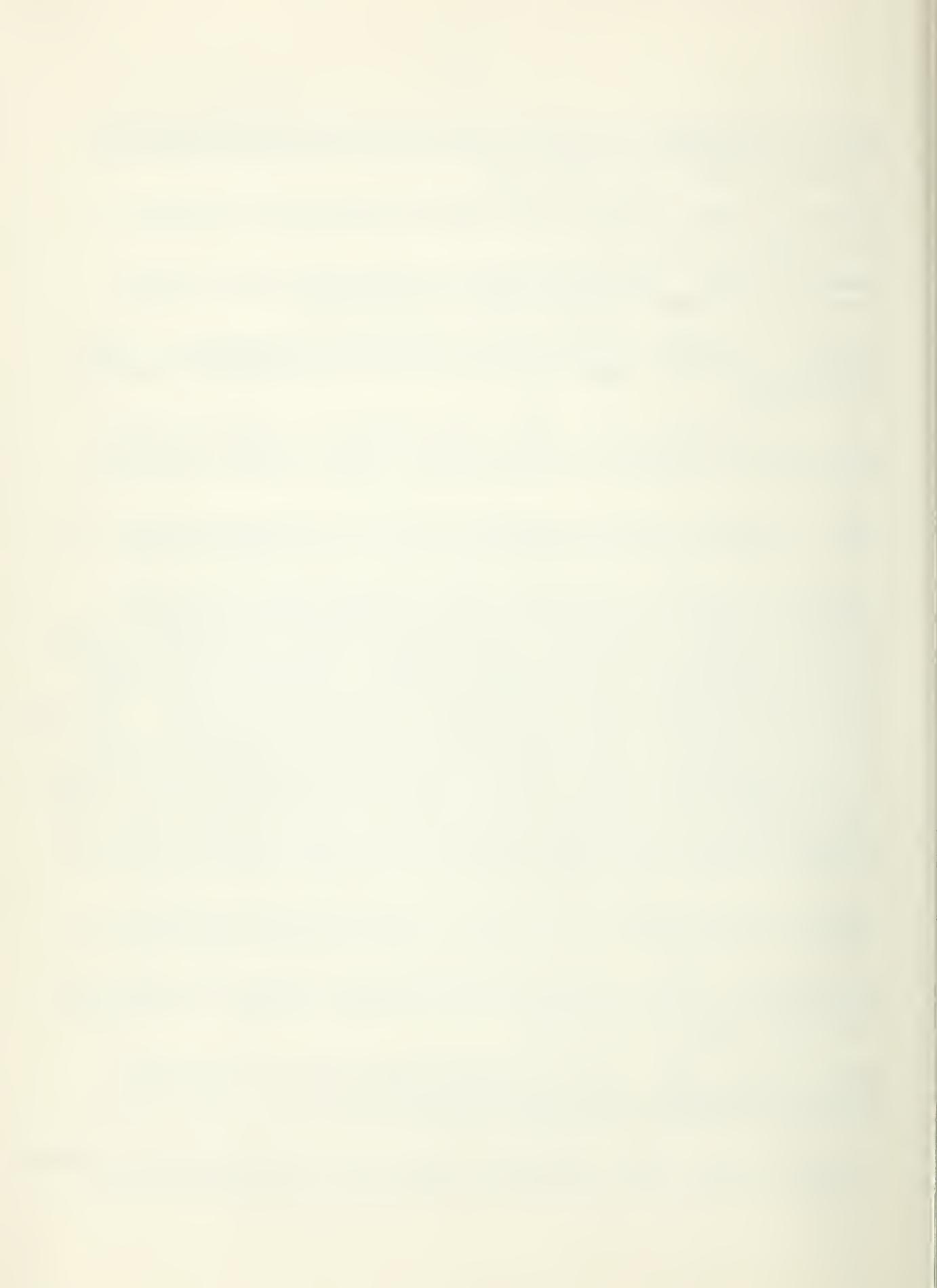
Johnson, R. T., and G. W. Wheatley. 1959. "The effects of different rotations on sugar beet production in land infested with the sugar beet nematode, *Heterodera schachtii*, in the Salinas Valley of California." Jour. American Soc. Sugar Beet Technol. 10(4):286-289. (Spreckels Sugar Company, Spreckles, California). Six different rotations including crops commonly grown in the Salinas Valley were compared for the effects they had on a subsequent sugar beet crop. The inclusion of broccoli, a crucifer, immediately prior to the sugar beet crop appeared to have the most undesirable effect on the following beet crop. The deleterious effect appeared to result from an early nitrogen deficiency due to the amount of vegetative material turned under and also to the increase of the sugar beet nematode in that plot. It was demonstrated that if beets and crucifers are to be included in the same rotation, on land infested with the sugar beet nematode that the crucifers should follow the beets rather than the beets following the crucifers.

Johnston, H. G. and Taylor, D. P. 1960. "Nematode control on established plants." EDCO News Letter (EDCO Corp., Elkton, Maryland). 11(3):3/4p.

Johnston, T. M. 1959. "Antibiosis of *Clostridium butyricum* Prazmowski on *Tylenchorhynchus martini* Fielding, 1956, (Nematoda, Phasmidia) in submerged rice soil." Diss. Abs. 20(1):44.

Jones, F. G. W. 1959. "Plant nematodes, their bionomics and control. By: Jesse R. Christie, Gainesville, University of Florida, Agricultural Experiment Station." 256 pp. Nematologica. 4(3):p.236.

1959. "Nematology Department." Rep. Rothamst. Exp. Station for 1959. 111-116. Report of work in plant nematology for 1959 done at



above station, with bibliography of 21 publications and 14 abstracts of research papers.

Jones, F. G. W. 1960. "Plant parasitic nematodes." Advancement of Science. 174-180. Good general article with some illustrations.

Jurinak, J. J., Brown, A. L. and P. E. Martin. 1960 - March/April. "Soil fumigant determination, extraction and determination of ethylene dibromide in soils." Journal of Agricultural and Food Chemistry. 8(2): 113-119. A method utilizing vacuum distillation and catalytic oxidation is described for the determination of EDB in soil. Recovery is reported in the range of about 82 to 0.2 mg. of EDB/50 grams of soil. Moisture and organic matter affect recovery.

Kämpfe, Lothar. 1959. "Zur Physiologie von Heterodera-Larven unter Laboratoriumsbedingungen als Testobjekte für Nematizidprüfungen." Verhandl. des IV. Internationalen Pflanzenschutz-Kongresses Hamburg 1957. Bd. I: 605-611.

Kämpfe, L. 1959. "Zystenbildende Fadenwürmer-gefürchtete Kartoffel- u. Rübenschädlinge." Die Umschau. 59(18):560-564. Popular review-type article.

_____. 1959. "Über Möglichkeiten der 'Physiologisch-ökologischen' Arbeitsweise in der Nematodenforschung." Verhandl. der Deut. Zool. Gesell. in Münster/Westf. 378-386.

_____. 1959. "Moderne Bekämpfungsmöglichkeiten von pflanzenparasitischen Fadenwürmern." Die Umschau. 59(20):623-626. Popular, review-type article.

Kämpfe, Lothar. 1960. "Über den Wert von Schwanzform und Körpermassen für die Artdiagnose der Nematoden (dargestellt an der Gattung *Heterodera Schm.*)." Nematologica Supplement #II (Rpt. 5th International Symposium Plant Nematology Uppsala) Supplement II:112-122.

_____. 1960. "Die Räumliche Verteilung des Primärbefalls von *Heterodera schachtii* Schmidt in den Wirtswurzeln." (The position in host roots of the primary attack by *H. schachtii*....). Nematologica 5(1):18-26. Re: pot-grown rape and sugar beet vs. agar experiment. Re: some pref. for points of origin of lateral roots.

Kantzes, J. G., et al. 1959. "Control of root knot nematodes on vegetables on the eastern shore of Maryland with 1,2-dibromo-3-chloropropane (Nemagon) fertilizer mixtures." Plant Dis. Reptr. 43(12):1231-1235. (University of Maryland, College Park.)

Kasimova, G. A. 1959. "The state of the study of the chief phyto-nematodes of Azerbaijan, and measures for their control." In Russian - not indexed. *Trudy Gel'min. Lab. Akad. Nauk. SSSR.* 9:128.

Kemper, A. 1959. "Weitere Unkräuter als Wirtspflanzen des Wurzelgallen-Schädlings (*Meloidogyne* sp.)." *Gesunde Pflanzen* 11(12):229-231.

Kemper, A. 1959. "Über die Bedeutung freilebender Nematoden als Pflanzenschädlinge und Möglichkeiten ihrer Bestimmung im Boden." *Gesunde Pflanzen* 11(7):135-138. Re: General summary; also critical numbers of *Ditylenchus dipsaci*, *Pratylenchus pratensis* and *Paratylenchus per* unit of soil given.

Khan, M. A. 1960. "Stictylus hastatus (Khan, 1957) N. comb., and Stictylus unguilacaudus (Khan, 1957) N. comb. (Nematoda: Neotylenchidae)." *Canadian Jour. Zool.* 38(1):225-226. Canada Department Agriculture, Ottawa, Ontario. Insect parasites.

 . 1960. "Descriptions of two nematodes, *Ektaphelenchus macrostylus* n. sp., and *Laimaphelenchus ulmi* n. sp., with a key to species of *Laimaphelenchus*." *Canadian Jour. Zool.* 38(1):91-97. Two new species of nematodes from Canada are described. Females of *Ektaphelenchus macrostylus* n. sp. were collected from the Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopk., and males from the beetle galleries in the bark of Douglas-fir, *Pseudotsuga menziesii* (Mirb.) Franco. *Laimaphelenchus ulmi* n. sp. was collected from bark of elm, *Ulmus americana* L. A key is given to the species of *Laimaphelenchus*.

Khan, Sekender Ali. 1959. "Pathogenic effects of *Pratylenchus zeae* on sugarcane." *Phytopathology* 49(9):543.

Khan, S. A. 1960. "Studies of *Pratylenchus zeae* (Nematoda, Tylenchida) on sugarcane in Louisiana." *Diss. Abs.* 20(7):2483. Re: pathogenicity alone and in combination with fungus, *Phytophthora megasperma*.

Kharichkova, M. V. 1959. "Study of sanitation of onions on Dimitrov Collective Farm (Kolkhoz imeni Dimitrov) Kolomna District, Moscow Region." In Russian. *Vsesoiuzn. Inst. Gel'mintologii im. I. I. Skriabina. Trudy* 6:415-418. English summary. Control of *Ditylenchus dipsaci*.

Kincaid, Randal R. 1959. "Progress in Research on shade tobacco disease control, 1922-1959." Soil and Crop Science Society of Florida 19th Annual Meeting. 19:270-275. Review of work done, with seventeen literature citations.

King, G. H. 1960. "Nematode control and fertilizer adjustment." Chilean Nitrate Farm Forum. (66):14-15. Summary type article.

Kirianova, E. S. 1959. "On the systematics of the nematodes belonging to the genus *Heterodera* Schmidt, 1871." Scientific Academy of USSR Zoological

Journal. 38(11):1620-1626. (In Russian, with very brief English summary.) Illustration of cuticle walls of several species.

Kirianova, E. S. 1959. "Permeability of the cuticle in fresh-water hair-worms (Nematomorpha, Gordioidea)." Zoologicheski Zhurnal. 38(4):509-519. (In Russian--English summary). Permeability studied on *Gordius*, *Parachordodes* and *Gordionus*.

 . 1959. "Certain principles (or rules) for distribution of soil plant nematodes." Proc. 12th Planning-methods Conference for Protect. of Plants in Northwest Zone (Abst. Sci. Invest., Protect. Plants, N. W. Zone, USSR) (Riga). 114-115. (In Russian).

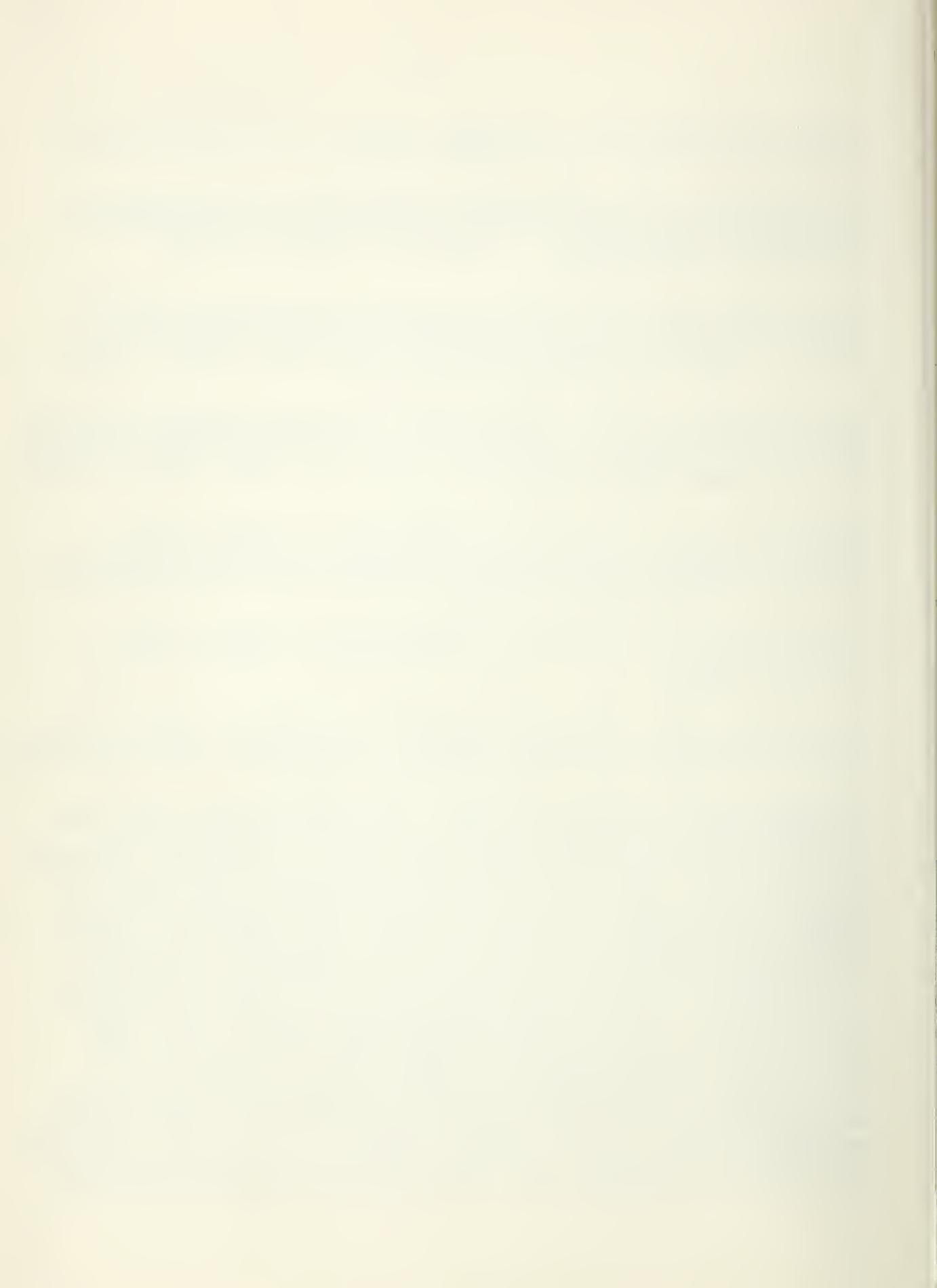
 . 1959. "New information on parasitic nematodes of plants of the Leningrad Oblast." (In Russian) Proc. 12th Planning-methods Conference for Protect. of Plants in Northwest Zone (Abst. Sci. Invest., Protect. Plants, N. W. Zone, USSR) (Riga). 116-117.

Kirkpatrick, J. D., W. F. Mai, E. G. Fisher and K. G. Parker. 1959. "Population levels of *Pratylenchus penetrans* and *Xiphinema americanum* in relation to potassium fertilization of Montmorency sour cherries on Mazzard root stock." Phytopathology. 49(9):543.

Kirkpatrick, J. D., W. F. Mai, E. G. Fisher and K. G. Parker. 1959. "Relation of nematode population to nutrition of sour cherries." Phytopathology. 49(9):543.

Kleijburg, P. 1960. "Soil sample examination as a basis for Advisory work against stem eelworms, *Ditylenchus dipsaci*." Nematologica - 50th International Symposium at Uppsala - August 1959. Supplement II:22-27.

Kleyburg, P., and M. Oostenbrink. 1959. "Bedrijfslaboratorium voor Gronden Gewasonderzoek, Netherlands." Nematodes in relation to plant growth I. The nematode distribution pattern of typical farms and nurseries. Netherlands Jour. Agric. Sci. 7(4):327-343. The nematode population in every field of ten representative farms and nurseries in various parts of the country was analyzed and estimated. Each field contained a mixed population of plant-parasitic nematodes as well as saprozoic forms. Comparison of the results of the analysis revealed marked qualitative and quantitative differences in the nematode distribution according to soil type, cropping and manuring. The total number of active nematodes per 100 ml. of soil from individual fields ranged from 1005 to 16,105 with an overall average of 3004. Known and suspected phytophagous nematodes ranged from 120 to 3510 per 100 ml of soil with an overall average of 909. The prevalent phytophagous genera were *Heterodera*, *Paratylenchus*, *Pratylenchus*, *Rotylenchus*, *Tylenchorhynchus* and *Meloidogyne*. In one or more fields of each holding some species reached population densities which are known or suspected to be of critical importance for the growth of one or more main crops. The results of these and similar farm surveys are considered to be a starting point for further research into



a number of obscure crop husbandry problems and may be used as a basis for advisory work.

Klingler, Jakob. 1958. "Die Bedeutung der Kohlendioxyd-Ausscheidung der Wurzeln für die Orientierung der Larven von *Otiorrhynchus sulcatus* F. und anderer bodenbewohnender phytophager Insektenarten." *Mitteilungen der Schweizerischen Entomologischen Gesellschaft.* XXXI(3/4): 205-269. Re: Attraction by CO₂ gradients.

Klingler, J. 1959. "Anziehung von Collembolen und Nematoden durch Kohlendioxyd-Quellen." *Mitteilungen der Schweizerischen Entomologischen Gesellschaft.* 32(2/3):311-316. CO₂ experiment with *Ditylenchus dipsaci*.

Kloss, G. R. 1959. "Novo Nematoide parasito de *Helochares pallipes* (Brulle, 1838) e alotipos machos de "Cameronia biovata" Basir, 1948 e "Singhiella singhi" Rao, 1958 (Nematoda, Thelostomatidae e Hystrignathidae)." A new nematode parasite of *Helochares pallipes* and allotype males of *Cameronia biovata* and *Singhiella singhi*. *Rev. Brasil. Biol.* 19(2):161-162. *Zonothrix helocharae* from the lower intestine of *Helochares pallipes* from Forest Reserve "Sooretama", Munic. of Linhares, State of Espírito Santo, Brazil, and description of allotypes mentioned.

Kloss, G. R. 1959. "Nematoideos parasiticos de um "Hydrophilidae" bromelicola." (Hydrophilid bromelicolous nematode parasites.) *Rev. Brasil. Biol.* 19(3):265-270. Itaguaiana dollfusi from soils at Inst. Ecol. and Agric. Municip. of Itaguai, Estado do Rio de Janeiro, Brazil. Itaguaiana bromelicola, from same locality as the preceding *Zonothrix gladius*, from same locality as the preceding.

Kloss, G. R. 1960. "Catalogo de nematoideos fitofago do Brazil." Bol. Fitossanitario, Dept. Nac. da Producao Vegetal, Minist. Agricultura, Rio de Janeiro. 8(1/2):1-26. Compilations, largely of Lordello's work.

Klotz, L. J., et al. 1959. "Laboratory method for testing effectiveness of soil disinfestants." *Plant Dis. Reporter* 43(11):1174-1175. University of California, Riverside.

Kondakova, E. I. 1958. "Predacious fungi in area around Moscow." (In Russian). Vsesoiuzn. Akad. Sel'skokhoz. Nauk im. V. I. Lenina. Dok. (3): 28-33. For control of root knot especially.

Kononova, M. E. and Vinnichuk, R. I. 1959. "On the study of a method of disinfecting rice seeds from *Aphelenchoides oryzae* Yokoo." (In Russian - indexed from title only) Trudy Gel'min. Lab. Akad. Nauk. SSSR. 9:130-132.

Kosobutskiy, M. and M. A. Sosnina. 1956. "Biological factors effecting cotton shoot dying and their control." Nauchn. Tr. Uzb. S.kh. Inst. 9(1): 87-96. Investigations made under production conditions in Samarkandskaya Oblast' in 1951-1954 have uncovered 48 species of invertebrate and vertebrate animals and fungi which contribute to destruction of germinating seeds and

shoots of cotton before budding. During cotton's early development, with an average of 53% destruction of the seedlings, the most serious destructive agents were nematodes, root mites, May beetles and wireworms. During the 2d period (from sprouts to the formation of the 5th leaf), with an average shoot destruction of 19.5%, nematodes, root mites and stem borers were most harmful. During the period from the 5th leaf to budding (thinning out by 7.5%), nematodes, root mites, stem borers, aphids, grasshoppers and cicadas were the most serious pests. The application of organic synthetic preparations cut shoot loss by 32-74%. Preplanting dusting of cotton seeds with DDT (50-60 kg) and hexachlorocyclohexane (80-100 kg/ton of seeds) had good effect and should be done as routinely as treating seeds with fungicide.

Kradel, J. 1958. "Der Einfluss des Pflanztermines auf die Befallsintensität des Kartoffelnematoden (*Heterodera rostochiensis* Wr.) unter Berücksichtigung verschiedener Standorte." Nachrichtenblatt für den Deutschen Pflanzenschutzdienst. 12(12):221-230. Influence of planting time on intensity of infestation of potato root eelworm. Indexed from English summary.

. 1959. "Stockälchenbefall in Abhängigkeit von Umweltfaktoren." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg Wiss. Z. Univ. Halle. Math.-Nat. VIII(1/5):541.

. 1960. "Mehrjährige Untersuchungen Zum Wirtspflanzenkreis Einer Herkunft Des Stock- und Stengelälchens (*Ditylenchus dipsaci*)."
Nematologica - 50th International Symposium at Uppsala - August 1959.
Supplement II:40-48.

Krusberg, L. R. 1959. "Investigations on the life cycle, reproduction, feeding habits and host range of *Tylenchorhynchus claytoni* Steiner." Nematologica. 4(3):187-197.

. 1960. "Hydrolytic and respiratory enzymes of species of *Ditylenchus* and *Pratylenchus*." Phytopathology 50(1):9-22.

Kühn, Horst. 1959. "Zum Problem der Wirtsfindung Phytopathogener Nematoden." Nematologica 4(3):165-171.

. 1959. "Zur Kenntnis der Wirtspflanzen von *Ditylenchus destructor* Thorne, 1945." Nachrichtenblatt für den Deutschen Pflanzenschutzdienst. 13(3):57-58. Re: Host plants of *D. destructor* - list from Goodey and Franklin given plus three new additions: parsnip, celery and sunflower.

. 1959. "Die Orientierung der Nematoden im Boden." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg Wiss. Z. Univ. Halle. Math. Nat. VIII(4/5):540.

Kuiper, K. 1955. "Grondontsmettingsproeven bij de teelt van peen ter bestrijding van parasitaire wortelaaltjes." T. Pl. Ziekten. 61:21.

Kuiper, K. 1959. "Inoculatieproeven Met Hemicycliophora typica." Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent. XXIV(3-4):619-627. Inoculation trials with Hemicycliophora typica. Symptoms of poor growth in carrots (fig. 1) and some other crops on marine sandy soil disappeared after a soil disinfection with nematicides (fig. 2). Infested crops showed symptoms of stubby root. The ectoparasitic nematode Hemicycliophora typica was found associated with these symptoms. After inoculation of these nematodes in sterilized soil the typical root symptoms were reproduced on carrots. On beet, wheat and iris until now no or only slight root symptoms were obtained. The nematodes propagated on beet, carrot, wheat and iris. Reproduction without males seems to take place.

_____. 1960. "Resistance of white clover varieties to the clover cyst-eelworm, Heterodera trifoliis Goffart." Nematologica 50th International Symposium at Uppsala August 1959. Supplement II:95-96.

Kunii, Y. 1959. "Screening test for soil nematodes by its susceptibility." (In Japanese) Jap. J. Parasitol. 8(3):412-413.

Labruyere, R. E., H. den Ouden and J. W. Seinhorst. 1959. "Experiments on the interaction of Hoplolaimus uniformis and Fusarium oxysporum f. pisi race and its importance in early yellowing of peas." Nematologica. 4 (4):336-343.

Ladygina, N. M. 1957. "Effect of temperature and humidity on stem nematodes of potatoes and onions." Uch. Zap. Kharkovsk. Univ. (84): 101-114. It was established that under laboratory conditions the temperature limit for survival of *Ditylenchus destructor* and *D. allii* is 20-28° or less, and the limits from high temperature, for 5 to 20 minutes are 47-52° (for potato stem nematode) and 50-55° for onion stem nematode. Plant infection is possible at temperatures from 1 to 37°; it occurs most intensely at 15-20° in *D. destructor* and at 7-17° in *D. allii*. The optimum temperature for reproduction and development of *D. destructor* is 20-27°, of *D. allii*, 13-22°. *D. allii* nematodes are capable of preserving their viability for 2-3 years in dry air environments; they withstood effects of dry air in a desiccator over concentrated HCl for a period of several months. *D. destructor* nematodes survived under conditions of relative humidity not less than 40%, and in dry air conditions they preserved their viability up to 1-1 1/2 months. The results confirm the independence of species of these nematodes. The differing thermophility of the potato stem nematode and the onion stem nematode is reflected in the character of their geographic distribution. Taking into account the low temperature range of infection and development of the phytohelminths studied, the temperature in potato storage houses should be maintained within a range of 1-3° for prophylactic purposes.

Lall, F. S., and K. K. Dass. 1959. "On the biology of root-knot nematode

Meloidogyne incognita var. acrita Chitwood. Nematoda: Heteroderidae." Sci. and Culture 25(4):263-265. This nematode infests vegetables belonging to the Solanaceae, Leguminosae and Malvaceae. Its larvae can survive for 3 months without host. Fertilization with muriate of potash reduces nematode infestation.

Lau, N. E. and J. P. Reed. 1960. "Nematodes associated with red clover in its second growth year." Plant Dis. Reporter. 44(6):402-404.

Lear, B. and D. J. Raski. 1959. "Root-knot nematode survival in excised grape roots in soil fumigated with ethylene dibromide." Phytopathology. 49(9):543-544.

Leather, R. I. 1959. "Diseases of economic plants in Ghana other than cacao." Ministry of Food and Agriculture, Ghana. (1):40pp. This is a handbook on plant diseases for growers with only incidental mention of nematodes and no new information. *Anguillilina (Radopholus) similis* on Canary bababas and *Meloidogyne* spp. on other hosts.

Le Berre, J. R. and M. Ritter. 1960. "Etude Histologique di Nematocecidies en Microscopie de Fluorescence." Nematologica - 50th International Symposium at Uppsala. Supplement II:144-148.

Lewis, G. D. 1960. "Extraction of *Ditylenchus dipsaci* from organic soil and dried onion scales." Phytopathology. 50(4):240.

Lewis, G. D. and W. F. Mai. 1960. "Overwintering and migration of *Ditylenchus dipsaci* in organic soils of southern New York." Phytopathology. 50(5):341-343.

Lewis, F. J. von M. and Mai, W. F. 1960. "Survival of encysted and free larvae of the golden nematode in relation to temperature and relative humidity." Proc. Helminthol. Soc. of Washington 27(1):80-85.

Lider, L. A. 1959. "The performance of vigorous nematode resistant rootstocks in field trials in the San Joaquin Valley." Amer. J. Enol. and Viticult. 10(3):147-151. No nematode species mentioned. Solonis x Othello 1513 and V. Champini, Dogridge were the two stocks of greatest interest in these studies.

Lindgren, Ralph M. and Berch W. Henry. 1949. "Promising treatments for controlling root disease and weeds in a southern pine nursery." Plant Dis. Rpt. 23(5):228-231.

Lindhardt, K. 1959. "Kartoffelal, en samlet oversigt (potato nematodes *Heterodera rostochiensis*) a survey." København, 52p. Denmark, Statens Plantetilsyn Oplysende Skriftraekke.

Loewenberg, J. R., T. Sullivan and M. L. Schuster. 1959. "A virus disease of *Meloidogyne incognita incognita*, the southern root-knot nematode." Nature London. 184(Supplement #24 '4702'):1896.

. 1960. "The effect of pH and minerals on the hatching and survival of *Meloidogyne incognita incognita* larvae." Phytopathology. 50(3):215-217.

. 1960. "Gall induction by *Meloidogyne incognita incognita* by surface feeding and factors affecting the behavior pattern of the second stage larvae." Phytopathology. 50(4):322-323.

Loof, P. A. A. 1959. "Ueber das Vorkommen von *Endotokia matricida* bei *Tylenchida*." Nematologica. 4(3):238-240.

. 1959. "Miscellaneous notes on the genus *Tylenchorhynchus* (*Tylenchinae*: Nematoda)." Nematologica 4(4):294-306.

Loos, Clive A. and Sarah B. Loos. 1960. "Preparing nematode-free banana seed." Phytopathology. 50(5):383-386.

. 1960. "The black-head disease of bananas (*Musa acuminata*)." Proceedings of the Helminthological Society of Washington. 27(2):189-193. Caused by *Radopholus similis*; behavior in different locations indicates existence of physiological races; symptoms of disease on banana described and illustrated.

Lordello, L. G. E. 1957-1958. "Nota sobre o genero *Mononchus* de nematodeos predadores." Anais Esc. Sup. Agric. Luiz de Queiroz, Univ. Sao Paulo. 14-15:119-124. Seven species of *Mononchus*, including the new one, *M. jairi*, n. sp., found in the State of Sao Paulo, Brazil also 8 species found outside the State are listed.

Lordello, L. G. E. and Zamith, A. P. L. 1959. "Observacoes sobre O Genero *Butlerius* De Nematodeos De Vida Livre." Rev. Brasil. Biol. 19(2):177-182. *Butleriodes*, n. g. and *butlerius singularis*, n. sp. are described.

Lownsberry, B. F. and Ivan J. Thomason. 1959. (U. California, Davis and Riverside.) "Progress in nematology related to horticulture." Proc. Amer. Soc. Hort. Sci. 74:730-746. This review summarizes the most important cases of nematode parasitism of fruits and nuts, vegetables, and ornamentals in the continental U. S.; considers refinements in diagnosis of nematode disease and proof of nematode pathogenicity; discusses the manner in which nematodes injure plants; and examines progress in nematode control.

Lownsberry, B. F., Serr, E. F. and Hansen, C. J. 1959. "Nematodes pose serious problem for orchardists." Almond Facts. 24(6):9. General article on control of root knot and root lesion nematodes on peach, almond, and plum--See Nemagon card.

. 1960. "Deciduous fruit and nut trees; root-knot nematode on peach and root-lesion nematodes on

walnut cause serious problems for California orchardists." Diamond Walnut News. 42(1):12-13. Review type article of previous work done, with table of resistant and susceptible varieties of various fruits and nuts given.

Lownsberry, B. F. and D. R. Viglierchio. 1960. "Mechanism of accumulation of *Meloidogyne incognita* acrita around tomato seedlings." *Phytopathology*. 50(2):178-179.

Lownsberry, B. F. 1960. "Stimulation of walnut by Schradan (Ompa) is not the result of root-lesion nematode control." *Plant Disease Reporter*. 44(9):690-691.

Luc, Michel. 1960. "Dolichodorus profundus n. sp. Nematoda-Tylenchida." *Nematologica*. 5(1):1-6.

Luc, Michel. 1960. "Trois nouvelles especes du Genre Rotylenchoides Whitehead, 1958 Nematoda-Tylenchida." *Nematologica*. 5(1):7-17.

McAllister, D. R. 1959. "Alfalfa stem nematodes reduce hay yields." *Farm and Home Sci. (Utah Sta.)* 20(3):68-69.

McBeth, C. W. 1959. "Nematode pests of perennial crops." Span. London. 2(1):10-14. Popular review-type article - 14 nematodes mentioned but not correlated with hosts in Abstract, therefore nine hosts listed not put in host file. Indexed from abstract.

McCants, C. B., E. O. Skogley, and W. G. Woltz. "Influence of certain soil fumigation treatments on the response of tobacco to ammonium and nitrate forms of nitrogen." *Soil Sci. Soc. Am. Proc.* 23(6):466-469. Fertilizers in which the nitrogen was all-ammonium, all-nitrate or equal parts ammonium and nitrate were applied with the following soil fumigation treatments; not-fumigated, Dowfume W-85 ethylene dibromide, Shell DD dichloropropene and dichloropropane and methyl bromide. Data were obtained on the effect of fumigation and N treatments on (1) the relative levels of ammonium and nitrate N in the soil during the growing season, (2), the ammonium and halogen content in the tobacco leaf at certain stages of growth and (3) the yield and certain properties of the cured tobacco leaf. Methyl bromide and Shell DD reduced nitrification more than Dowfume W-85. Three weeks after transplanting, the ammonium N. and halogen contents in tobacco leaves from the ammonium N treatment were higher than from the nitrate N treatment on soil fumigated with Shell DD or methyl bromide, but no different for the Dowfume W-85 or not-fumigated treatments. The yield and quality index of tobacco from the Shell DD and methyl bromide treatments increased with increasing percentage of the total N applied in the nitrate form. With Dowfume W-85, the highest yield was from the mixture of ammonium and nitrate N. There were no differences in yield or quality among N treatments on soil not-fumigated. For all fumigation treatments, the percentage N and percentage nicotine in the cured leaf were



higher where ammonium nitrogen than where nitrate nitrogen was applied.

McCoy, E. E. 1959. "Nematodes and the New Jersey nursery industry." N. J. Dept. Agriculture. C. 411, 12p. Twenty-one genera including thirteen species mentioned associated with twenty-eight plants are listed.

McGrath, Hilde and Paul R. Miller. 1959. "Some important developments in plant diseases in the United States in 1958. A nematode vector of fan-leaf virus of grapevines." FAO Plant Protection Bulletin. VII(9):117-123 (117-118). This report has been adapted primarily from recently published material.

McGrew, John R. 1959. "Strawberry diseases." Farmers' Bulletin No. 2140. 2-24. *Meloidogyne hapla*, *Pratylenchus* spp., *Belonolaimus gracilis*, in roots and *Aphelenchoides fragariae*, *F. besseyi*, *Ditylenchus dipsaci*, in foliage.

Mackintosh, G. M. 1960. "Gottholdsteineria buxophila attacking box (*Busus sempervirens*) hedges." Plant Pathology 9(1):38.

Maggenti, A. R. and M. W. Allen. 1960. "The origin of the gelatinous matrix in *Meloidogyne*." Proceedings of the Helminthological Society of Washington. 27(1):4-10.

Mai, W. F. 1960. "Growth of apple seedlings in relation to soil temperature and inoculation with *Pratylenchus penetrans*." Phytopathology 50(3):237-238.

Maki, T. E. and Henry, B. W. 1951. "Root-rot control and soil improvement at the Ashe Forest Nursery." Southern Forest Exp. Sta., New Orleans, Louisiana Occasional Paper #119. 23pp.

Malo, S. 1960. "Comparative efficiencies of three methods for extracting nematodes from root and soil samples." Plant Dis. Reporter. 44(3):217-219.

Maloy, O. C. and Burkholder, W. H. 1959. "Some effects of crop rotation on the *Fusarium* root rot of bean." Phytopathology. 49(9):583-587.

Mamonova, Z. M. 1959. "On the question of the study of *Heterodera avenae* Filipjev, 1934 in Bashkir ASSR." Trudy Gel'min. Lab. Akad. Nauk. SSSR. 9:188-189. In Russian - indexed from title only.

Mankau, R. 1959. "Polygonum persicaria L, a new host for *Heterodera trifolii* Goffart." Plant Dis. Reporter. 43(12):1230.

Marshall, Gillian M. 1960. "The incidence of certain seed-borne diseases in commercial seed samples." Annals of Applied Biology. 48(1):34-38. IV. Bunt of Wheat, *Tilletia caries* (DC) Tul. V. Earcockles of wheat, *Anguina*

tritici (Stein.) Filipjev. Re: survey showing disease decrease from 9% in 1921 to 0.1% in 1960.

Martin, George C. 1959. "Plants attacked by root-knot nematodes" Rhodesia Agricultural Journal. 56(4):162-175. 425 different species of plants capable of harbouring egg producing females or exhibiting galls on root systems.

Martin, W. J. 1960. "The reniform nematode *Rotylenchulus reniformis* may be a serious pest of the sweet potato." Plant Disease Reporter. 44(3):216.

Massey, Calvin L. 1960. "Nematode parasites and associates of the California Five-spined engraver, *Ips confusus* Lec." Proceedings of the Helminthological Society of Washington. 27(1):14-22.

_____. 1960. "A new species of nematoda, *Cylindrocorpus erectus*, associated with *Scolytus multistriatus* Marsh. in American Elm." Proceedings of the Helminthological Society of Washington. 27(1):42-44. Bark beetle parasite. The nematode was collected from the egg and larval galleries of the insect.

Mastauskis, S. 1958. "Pflanzenschaedliche Nematoden in Litauen." In Russian. Acta Parasitol. Lithuanica 1:101-110. German summary.

Mayzel, W. 1879. "Ueber die Vorgänge bei der Segmentation des Eies von Würmern (Nematoden) und Schnecken." Zool. Anz. 2:280-282. Re: Segmentation of eggs of nematodes and snails--*Ascaris nigrovenosa* *Strongylus auricularis*.

Medina Duno, J. 1959. "Como evitar la propagacion del anillo rojo del coco." Agr. Venezol. 23(214):21. "How to avoid the propagation of the red ring of the cocoa-tree." Control measures listed, but nematode not named.

Melis, G. 1959. "I nematodi dannosi alle piante agrarie (Nematodes injurious to agricultural plants)." Florence. Sta. di Ent. Agr. Nota Pract. 31, 28 p. Includes methods of control.

Miller, H. N. 1959. Florida Agric. Expt. Sta., Gainesville. "Nematode control on ornamental plants with soil fumigants." Proc. Florida State Hort. Soc. 72:403-408. Comparisons of formulations, dosage levels, methods of application and repeated applications of nemagon and VC 13 for the control of root-knot nematodes on selected nursery plants in place showed that nemagon at 2 and 4 gallons technical per acre used as a drench, injected and applied broadcast in granular form, and VC 13 at 13 and 27 gallons per acre drenched, gave sufficient reductions in root-knot nematode populations. For all combinations of numbers of applications and dosage levels, VC13 was superior to nemagon. Nemagon drenched or injected was superior to nemagon granular. The higher dosage levels of the fumigants were significantly better than the lower, however 2 applications of VC 13

at 27 gallons per acre were phytotoxic. Four applications of nemagon at monthly intervals were superior to 2, but not better than 2 applications of VC 13. Control of rootknot on ligustrum, boxwood and gardenia.

Miller, P. 1959. "Results of tests to control potato rot nematode in Wisconsin." Agric. Chemicals. 14(7):63,85-87.

Miller, P. M. (Connecticut Expt. Sta., New Haven.) 1959. "Control of nematodes at time of planting." Florists Exchange. 132(11):21. The nematocide, 1,2-dibromo-3-chloropropane, sold as Nemagon or Fumazone, was applied at planting time without injuring various plants. No specific nematode or plants mentioned.

 . 1959. "Nematocides and their application on vegetables." Conn. Veg. Growers' Assoc. Proc. 46:50-57. General article on the need for, types, and details of application methods of nematocides in vegetable fields.

Minton, Earl B., Eldon J. Cairns & Albert L. Smith. 1960. "Effects of soil fumigants on the occurrence of nematodes in field bins." Plant Disease Reporter. 44(7):479-483.

 . 1960. "Effects of soil fumigants on the occurrence of nematodes in field bins." Phytopathology. 50(8)(Part I):576. Data indicated that field bins can be freed of stylet nematodes by liquid fumigants injected at 6-, 12-, and 18-in. depths followed by intermittent applications of MC-2.

Minton, Earl B., Albert L. Smith and Eldon J. Cairns. 1960. "Population build-up and pathogenicity of reniform, root-knot, lance and spiral nematodes on cotton, soybean, and tomato in field bins." Phytopathology. 50(8)(Part I):576.

Minz, G. and Dina Strich-Harari. 1959. "Inoculation experiments with a mixture of *Meloidogyne* spp. on tomato roots." Ktavim, Records of the Agr. Res. Sta. (Israel). 9(3/4):275-279. Re: Three spp. found in one gall in experiment work; *Meloidogyne incognita acrita* predom. in summer, *M. javanica* in fall.

Minz, Gershon. 1959. "Nematode control. Reduction of nematode population by Agrotechnical means." Hassadeh. 39:1175-1176. General, brief outline of soil fumigation methods - nothing new, and not entered in chemical file.

Mishra, U. S. and Chauthani, A. R. 1959. "Spotlight on eelworms." Indian Farming. 9(6):33,35-39.

Moje, W. 1959. "Structure and nematocidal activity of allylic and acetylenic halides." Jr. Agric. and Food Chem. 7(10):702-707.

Moje, William. 1960. "The chemistry and nematocidal activity of organic halides. Advances in Pest control Res. 3:181-217.

Morton, D. J. 1959. "Progress report on cotton root-knot control for New Mexico." N. Mexico Agricultural Experiment Station Research Report. #24:15p.

Motsinger, Ralph E. and O. D. Morgan. 1960. "Control of root-knot nematode and aphid on tobacco." Plant Disease Reporter 44(6):399. Re: The systemic chemical 18133 (α,β -diethyl α -2 pyrazinyl phosphorothioate).

Mountain, W. B., R. M. Sayre and J. L. Townshend. 1959. "Plant parasitic nematodes in Southwestern Ontario - 1959". 39th Annual Report of the Canadian Plant Disease Survey 1959. xv-xvii.

Mulvey, Roland H. (Canada Dept. Agriculture, Ottawa) 1959. "Giant eggs of the clover cyst nematode, *Heterodera trifolii* Goffart, 1932." Nature. 184(Suppl.21):1662-1663. Giant eggs formed by impregnation of *H. trifolii* ♀ by ♂ of *H. schachtii*.

. 1960. "Giant larvae of the clover cyst-nematode *Heterodera trifolii* nematoda: Heteroderidae." Nematologica. 5(1):53-55.

Munakata, Katsura, Akio Harada, and Tsutomu Nishizawa. 1959. (Nagoya U., Japan.) "Nematicidal activities of halogenoalkylcarboxylic acid esters." Bull. Agric. Chem. Soc. Japan. 23(6):457-459. About 40 halogenoalkyl-carboxylic acid esters were synthesized and their nematicidal activities were tested against the rice white tip nematode, *Aphelenchoides besseyi*. Allyl esters of halogenoacetic acids were found to inhibit completely the growth of nematode at the 8 ppm level, and the most effective one was allyl bromoacetate inhibiting at the 2 ppm level, while sodium N-methyl-dithiocarbamate, a commercial nematicide inhibited at the 16 ppm level. The relationship of variation of the acid and alcohol moieties of esters to the nematicidal activity was discussed.

Myers, Ronald F. 1960. "The sensitivity of some plant-parasitic and free-living nematodes to Gamma and X-irradiation." Nematologica. 5(1):56-63.

Mygind, H. 1959. "Kartoffelalens forekomst i Danmark. (The occurrence of the potato root nematode in Denmark)." Tidsskr. Planteavl. 63(4):696-705. Cysts of the potato root nematode are rarely found on Danish farms, the findings being in the order of 0.07 to 0.28%. Practically all nurseries for trees and shrubs are free from potato root nematodes and other nurseries are almost free. A great number of gardens, however, are contaminated, the spreading from one garden to the other being difficult to avoid. In order to protect areas and districts of major importance, the growing of potatoes in vegetable gardens has been prohibited in certain towns for some years.

Myshkina, L. P. 1957. "Potato nematodes in the Gorkov Region." Uch. Zap. Gorkovsk. Gos. Ped. Inst. 1957(19):93-100. In analyzing potato leaves and

stems, roots and tubers from the fields and from vegetable storage houses, 10 species of nematodes *Pratylenchus pratensis*, *Aphelenchus avenae*, *Aphelenchooides parietinus*, *Aphelenchooides demani*, *Hexatylus viviparus*, *Meloidogyne marioni*, *Paratylenchus macrophallus*, *Paraphelenchus pseudoparietinus*, *Rotylenchus multicinctus*, *Ditylenchus intermedium* and 25 saprozoic species were identified.

Neal, A. L. 1959. "The influence of vitamin B₆ on the emergence of golden nematode larvae." *Phytopathology*. 49(9):547.

Nickle, William Robert. 1958. "Nematodes associated with the rootlets of Western White Pine in northern Idaho." Unpublished Thesis for Master of Science in Forestry. University of Idaho Library. Map showing distribution and photographs of nematodes involved--17 genera, but only a few species named.

Nickle, W. R. 1960. "Nematodes associated with the rootlets of Western White Pine in Northern Idaho." *Plant Dis. Reporter*. 44(7):470-471. Survey of both pole-blighted and healthy stands of white pine.

Nigh, Edward L., Jr. 1960. "Evaluation of two systemic insecticides applied as seed treatment for the control of *Meloidogyne incognita acrita* attacking cotton." *Plant Dis. Reporter*. 44(4):288-289. Thimet and Disyston, systemic insecticides, failed to control root-knot, applied as cotton seed treatments in these tests.

Nikulina, N. K. 1959. "Distribution of nematodes in vegetable growing and potatoes of RSFSR." *Trudy Gel'min. Lab. Akad. Nauk. SSSR*. 9:206-207. In Russian - not indexed.

Nolte, H. W. 1959. "Weitere Beobachtungen über eine Zwiebel-pcpulation von *Ditylenchus dipsaci* (Kühn 1858) Filipjev 1936." *Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg. Math.-Nat.* VIII(6):1123-1126.

Nolte, H. W. 1960. "*Ditylenchus dipsaci* (Kühn) an Knoblauch (*Allium sativum L.*)."*Nematologica - 50th International Symposium at Uppsala August 1959.* *Ditylenchus dipsaci* on garlic and other hosts.

Notzel, H., and Wagner, E. 1959. "Bekämpfung des Rübenenematoden (*Heterodera schachtii*) durch Fruchtfolgemassnahmen." *Deut Landwirt*. 10(10):493-496. Crop rotation control of *H. schachtii*.

Nusbaum, C. J. 1959. "Effects of cultural practices following tobacco harvest upon root-knot nematode populations." *Phytopathology*. 49(9): 547-548. *M. incognita* and *M. incognita acrita*.

_____. 1960. "Soil fumigation for nematode control in flue-cured tobacco. A summary of five years of field work." *Down to Earth*. 16(1): 15-17. Nematicide fumigants are being used in increasing amounts in tobacco

culture in North Carolina (and other states). Overdosing and/or injudicious use results in decreased nitrification in the soil, which is accentuated when ammonium-containing fertilizers are used, with an attendant check on crop growth. This effect is more pronounced when the soil is wet and aeration poor. Preventive measures include: (1) use of nitrate-containing, instead of ammonium, fertilizers, (2) waiting fully 2 weeks (more if the soil is wet) following treatment before planting, (3) opening the beds 12 or more hours before reridging prior to transplanting to promote aeration.

O'Bannon, John H. and Harold W. Reynolds. 1960. "Preliminary studies with DBCP cotton seed treatment for controlling the root-knot nematode." *Plant Disease Reporter*. 44(7):484-486. Pot and plot tests were successful but method cannot be recommended until tested extensively on field scale.

Oei, H. P. 1959. "Some methods for extracting nematodes." (In Indonesian) *Menara Perkebunan* 28(7):131,133-135,137,139,146. English summary. For plant and soil research.

Oostenbrink, M. 1959. "Uittreksels van de literatuur betreffende het onderzoek naar en de bestrijding van het aardappel-cystenaaltje, *Heterodera rostochiensis* Woll., in de periode 1950 t/m 1955. Aanvullende literatuurlijst over de jaren 1956 t/m 1958." *Plantenziektenkundige Dienst*, Wageningen, Overdruk. (121) (mimeo):116pp.

_____. 1959. "Enkele Eenvoudige Proefveldschema's bij Het Aaltjesonderzoek." Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent. XXIV(3-4):615-618. Some experimental designs in nematode field work. Three simple experimental designs are discussed, since they have special advantages with respect to nematode research work. They are meant for determining the effect of nematocides (A in Fig. 1), for comparing the susceptibility to damage of a series of plant species or varieties (B) and for the study of crop rotation effects in relation to nematode populations (C).

Oostenbrink, Michiel. 1959. "Einige Gründungsfragen im Hinblick auf pflanzenparasitäre Nematoden." IV. Internationalen Pflanzenschutz-Kongresses Hamburg 1957. 575-577 (Braunschweig 1959). (Indexed from English summary. Red clover appeared to build up population of *Pratylenchus penetrans*, but *Tagetes* sp. appeared to suppress *Pratylenchus* spp.)

Oteifa, Bakir A. and Dawood M. El-Gindi. 1956 (1957). "Studies on root-knot nematodes, *Meloidogyne* spp. in Giza, Egypt. I. - Morphology of the root-knot nematode, *Meloidogyne javanica*." Faculty of Agriculture - Bulletin No. 100. 3-16.

_____. 1956 (1957). "Studies on root-knot nematodes, *Meloidogyne* spp. in Giza, Egypt II. Developmental behavior

of the root-knot nematode, *Meloidogyne javanica*." Faculty of Agriculture bulletin No. 101. 3-10.

Oteifa, B. A. and M. F. Abdel Halim. 1957(1958) "Cropping effect on population dynamics of soil nematodes." Faculty of Agriculture - Bulletin No. 128. 3-12.

Oteifa, B. A., Y. Barrada and D. M. El Gindi. 1958. "An approach for using labelled radioactive phosphorus in physio-pathological studies of plant nematode diseases." Proceedings of the Second United Nations International Conference on the peaceful uses of atomic energy. (Geneva.) 27:48-50.

Oteifa, Bakir A. and Mohamed F. Abdel Halim. 1957(1958). "Effects of soil nature and seasonal changes on nematode population of Giza (Egypt) soil." Faculty of Agriculture - Bulletin No. 129. 3-9. Re: soil nematodes in general - no species mentioned.

Oteifa, Bakir A. and M. A. Ragab. 1957(1958). "Soil nematodes and fungi associated with cotton roots." Faculty of Agriculture Bulletin No. 142. 3-6.

Oteifa, Bakir A. 1957 (1959). "Nematode root rot of banana." Faculty of Agriculture - Bulletin No. 143. 3-11. *Pratylenchus*, *Radopholus*, *Meloidogyne*, *Xiphinema*, *Criconemooides*, *Hoplolaimus*, associated with commercial banana growing nurseries in Egypt. *P. musicola* was the major cause.

Oteifa, B. A. and M. A. Ragab. 1958. "Incidence of Fusarium wilt of tomato as affected by the root-knot nematode, *Meloidogyne javanica* and control of the disease complex with a soil fumigant." Egyptian Society of Horticulture Magazine. (132):49-55.

den Ouden, H. 1960. "Periodicity in spontaneous hatching of *Heterodera rostochiensis* in the soil." Nematologica - 50th International Symposium at Uppsala August 1959. Supplement II:101-105.

Overgaard Nielsen, C. 1959. "Soil fauna and the moisture regime of its environment." International Congress of Zoology (15th.) July 16-23, London 1958. pgs. 349-350.

Paetzold, D. 1959. "Nachtrag zur Arbeit Beiträge zur Nematodenfauna mitteldeutscher Salzstellen im Raum von Halle." Opuscula Zoologica III (2):81-82. An addition or amendment of a former paper 1958 on the fauna of mid-German salty areas in the region of Halle - taxonomic.

Page, A. B. P., and others. 1959. "Fumigation of lucerne seed with methyl bromide for the control of the stem eelworm *Ditylenchus (Anguillulina) dipsaci*." J. Sci. Food and Agriculture 10(9):461-467. N. G. M. Hague, V. Jakabsons, and R. E. Goldsmith, joint authors.

Palmer, G. and Edward Hackskaylo. 1958. "Additional findings as to the effects of several biocides on growth of seedling pines and incidence of Mycorrhizae in field plots." *Plant Dis. Rept.* 42(4):536-537. No mention of nematodes, but tolerance to 5 nematocides used is discussed. Greater growth noted in seedlings of Virginia pine noted, and suppression of growth by Nemagon.

Palti, J. and G. Minz. 1959. "Disease control of field and vegetable crops in seed beds." *Hassadeh*. 39:1311. Brief, general article on control, mostly chemical. Nothing new and not entered in chemical file.

Parker, M. W. and Borthwick. 1939. "Effect of photoperiod on development and metabolism of the Biloxi soybean." *Botanical Gazette*. 100(3): 651-689.

Parker, M. W. and Borthwick, H. A. 1939. "Effect of variation in temperature during photo periodic induction upon initiation of flower primordia in Biloxi soybean." *Botanical Gazette*. 101(1):145-167.

Parris, G. K. 1959. "A revised host index of Mississippi plant diseases." Miscellaneous Publication Number 1 of the Botany Department, Mississippi State University. 1-146.

Pastor Soler, J. 1959. "La lucha quimica contra los nematodos." *Agricultura* (Madrid). 28(330):569-570. General article on chemical control, with mention of all the usual soil fumigants, such as cloropicrin, DD, EDB, Vapam and Nemagon. *Heterodera maroni* (radicicola), *Heterodera rostochiensis* and *Tylenchulus semipenetrans* mentioned as damaging, will illustration of root knot on almond.

Peacock, F. C. 1959. "Dagger nematodes *Xiphinema* spp. associated with a clover sickness." *Nature London*. 184(4680):123.

Pearman, J. A. "Diseases of dahlias." *Agriculture Gazette of New South Wales*. 70(7):369-375.

Pereira, H. F., Figueiredo, E. R. De, and Hussni, J. 1960. "The burrowing nematode *Radopholus similis* in bananas on the shores in Sao Paulo." In Portuguese. *Biologica* 26(2):27-31.

Perry, V. G. 1959. "Anatomy, taxonomy, and control of certain spiral nematodes attacking blue grass in Wisconsin." *Dissertation Absts.* 19 (7):1509. Four new spp. of *Helicotylenchus* *H. digonicus*, *H. microlobus*, *H. pumilus* and *H. platyurus* were studied, and it was found that the first three cause summer dormancy of blue grass. Excellent control was given by 1,2-dibromo-3-chloropropane and 0-2,4-dichlorophenyl 0,0-diethyl phosphorothioate. The taxonomic status of the genus *Helicotylenchus* is

revised, Gottholdsteineria being placed in synonymy.

Phillips, F. T. 1959. "Effect of emulsifiers and organic diluents in soil insecticide and nematicide formulations." Nature London. 184 - Supplement #19 (4697):1512-1513. Soil structure influences percolation rates of emulsions. The use of emulsions and organic diluents may markedly affect the dispersion of the toxic agent through the soil.

Pieczynska, E. 1959. "Charakter wystepowania wolnozyjacych nicieni (Nematoda) w roznych typach perifitonu jeziora Tajty." Character of the occurrence of free-living Nematoda in various types of periphyton in Lake Tajty. Ekol. Polska, Ser. A, 7(12):317-337. English summary. Re: 20 soil and fresh-water forms listed.

Poinar, George O., Jr. and George G. Gyrisco. 1960. Cornell University, Ithaca, New York. "A nematode parasite of the alfalfa weevil Hypera postica Gyll." Jour. Econ. Ent. 53(1):178-179. Alfalfa weevil larvae collected on June 20, 1959 in Dutchess County, New York were found to be parasitized by nematodes. Three other fields in Dutchess County also contained parasitized larvae. An examination of preserved larvae collected earlier from control experiments showed that parasitized larvae were also present in Ulster and Orange Counties. Nematode specimens sent to Washington, D. C. were identified by A. L. Taylor, U. S.D.A., as belonging to the family Mermithidae.

Polozhentsev, P. A. and Artyukovski, A. K. 1959. "On the systematics of the family Mermithidae Braun, 1883 (Dorylaimata, Enoplida)." Zoologicheski Zhurnal. 38(6):816-828. In Russian English summary. Re: Taxonomy.

Powell, N. T. 1959. "The nature of the black shank-root-knot disease complex in fluecured tobacco and its control by breeding for resistance to both pathogens." Dissertation Abstracts. 19(11):2709-2710.

Pramer, D. 1959. "Nematodes have fungus enemies." N. J. Agr. 41(5): 8-9.

Prasad, N., Mathur, R. L., and Sehgal, S. P. 1959. "Molya disease of wheat and barley in Rajasthan." Cur. Sci. 28(11):453. Occurrence and symptoms - a serious pest in four districts in Rajasthan, India - first record. Caused by Heterodera avenae.

Prasse, J. 1959. "Quantitative analyse der nematodenfauna verschiedener Fruchtarten und Fruchtfolgen." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg Wiss. Z. Univ. Halle. Math. Nat. VIII(4/5):538.

Prasse, Joachim. 1959. "Quantitative analyse der nematodenfauna verschiedener Fruchtarten und Fruchtfolgen." Wiss. Ztschr. der Martin-Luther Univ. Halle-Wittenberg. Wiss. Z. Univ. Halle, Math.-Nat. VIII(4/5):565-570.

Frasse, Joachim. 1959. "Beitrag zur Kenntnis der qualitativen Zusammensetzung der Nematodenfauna unter landwirtschaftlichen Kulturpflanzen." Wiss. Ztschr. der Martin-Luther-Wiss. Z. Univ. Math.-Nat. VIII(6): 869-872.

Pratella, Gian Carlo. 1959. "Meloidogyne incognita var. acrita sui Tuberi di Patata in Italia." Annali della Sper. Agraria Rome. XIII n. ser. (6):181-188. Summary: An alteration caused by the nematode *M. incognita* var. *acrita* Chitwood found on potato tubers grown in Badia Polesine, Rovigo is described.

Presley, John T. 1959. "Cotton disease control, accomplishments, present status and outlook." The Cotton Gin and Oil Mill Press. 60 (24):7, 25, 26. Nematodes mentioned, but not by species - illustration of Dr. Raynolds. Very general article.

Price, D. 1960. "The control of parasitic eelworms in bananas." Trop. Agric. St. Augustine, Trinidad. 37(2):107-109. Nemagon used three ways against *Radopholus similis*.

Protsenko, E. P. 1957. "A recent case of joint infection of cereals by fungi and nematodes." Biul. Gl. Bot. Sada Akad. Nauk USSR. 29:91-93. In 1955, in the main Botanical Garden of the Academy of Sciences USSR, of *Agrostis tenuis* plants were discovered with the characteristic black galls on the leaves and stems of the panicles. A microscopic examination indicated that, in some cases, the galls appear as stromata with pycnidia of *Dilophospora alopecuri*; in other cases, they are filled with nematodes, and in still others the pycnidia and spores occur simultaneously with the nematodes. *D. alopecuri* was studied for the first time on *Alopecurus pratensis* in 1928. The fungus infects an entire genus of wild cereals. In some countries the disease is known to affect wheat, rye, and oats.

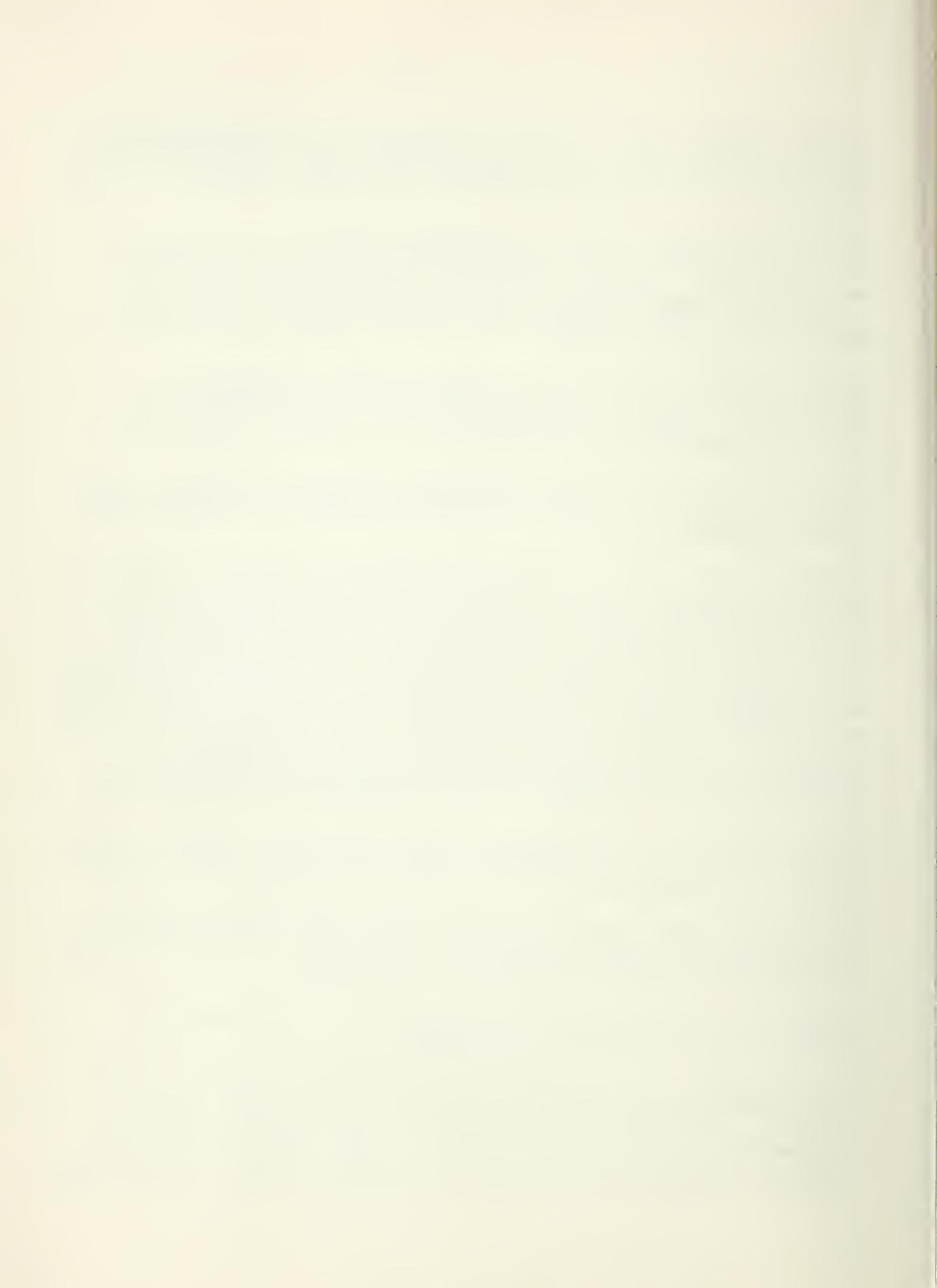
Ramsey, Glen B., B. A. Friedman, and M. A. Smith. 1959. "Market diseases of beets, chicory, endive, escarole, globe artichokes, lettuce, rhubarb, spinach, and sweetpotatoes." U. S. Dept. Agric. Handbook. 155 - 1-42.

Raski, D. J. 1959. "Sugar-beet nematode activity; yields increased by early planting in sugar-beet nematode infested fields in date-of-planting tests in Monterey County." Calif. Agr. 13(5):4, 14.

Raski, D. J., and Lider, L. 1960. "Nematodes in California grape production." Wines and Vines 41(3):27-29.

Remane, A. 1959. "Die interstitielle Fauna des Meeressandes." International Congress of Zoology 15th London, July 16-23, 1958. 320-323.

Reynolds, Harold W. and John H. O'Bannon. 1960. "Reaction of sixteen varieties of alfalfa to two species of root-knot nematodes." Plant Disease



Reporter 44(6):441-443. *Meloidogyne javanica javanica* and *M. incognita acrita*.

Rhoades, H. L., and M. B. Linford. 1959. University Illinois, Urbana. "Molting of preadult nematodes of the genus *Paratylenchus* stimulated by root diffusates." *Science*. 130(3387):1476-1477. The nonfeeding preadult larvae of the plant-parasitic nematodes, *Paratylenchus projectus* and *P. dianthus*, survive in moist soil during long periods in the absence of host plants. In water, only small percentages molt to the adult stage. In root diffusates from some but not all plants, nearly all of them molt.

Rhoades, Harlan Leon. 1959. "Biological studies of some nematodes of the genus *Paratylenchus* Micoletzky, 1922." *Dissertation Absts.* 20(6): 1946-1947. Re:Life history, infectivity, pathogenicity, host-reaction and nema-physiological observations.

Riggs, R. D. and N. N. Winstead. 1959. "Studies on resistance in tomato to root-knot nematodes and on the occurrence of pathogenic biotypes." *Phytopathology*. 49(11):716-724.

Rinkov, A., S. D. Van Gundy, R. L. Rackham and M. J. Garber. 1960. "The use of the onion test as a quantitative method for determining the distribution of emulsifiable DBCP in soil." *Plant Disease Reporter*. 44(7):510-515. Also control of *Tylenchulus semipenetrans* used as test on six citrus soils.

Ritter, M. 1958. "Sujets d'Actualités et Orientations Nouvelles en Nematologie." *Zoologie Agricole et Appliquée, Rev. de.* (4-6):1-10. General type article from Symposium at Hamburg, September 1957.

Rocka de Medina, A. E. 1959. "The sudden death of coffee trees in Angola." In Portuguese. *Gaz. Agr. de Angola* 4(4):187-191. Caused by a nematode opening the way for fungus infection.

Rogers, H. 1959. "Big gains recorded in nematode fight." *West. Fruit Grower* 13(8):9-11. Nematocides. General review type article, giving manufacturers and researchers recommendations for use of DD and Telone, Nemagon-Fumazone, Vapam and Mylone.

Rohde, R. A. 1959. "Basis for resistance of *Asparagus officinalis* var. *altilis* L. to the stubby-root nematode *Trichodorus christiei* Allen 1957." *Diss. Abs.* 20(1):21-22. Toxic comp. a glycoside-isolated from roots.

_____. 1960. "Acetylcholinesterase in plant-parasitic nematodes and an Anticholinesterase from asparagus." *Proceedings of the Helminthological Society of Washington*. 27(2):121-123. The presence of cholinesterase was indicated in all species of nematodes tested. Results support the theory that the mechanism of toxicity is an interference with acetylcholinesterase.

Rohde, R. A. 1960. "The influence of carbon dioxide on respiration of certain plant-parasitic nematodes." Proceedings of the Helminthological Society of Washington. 27(2):160-164.

Rollins, R. Z. 1960. "Drift of pesticides." Calif. Department Agriculture Bulletin. 49(1):34-39. Re: chloropicrin typed.

Ross, J. P. 1959. "Nitrogen fertilization on the response of soybeans infected with *Heterodera glycines*." Plant Dis. Repr. 43(12):1284-1286.

 . 1959. "Interaction of *Meloidogyne incognita incognita* and *Heterodera glycines* on soybeans." Phytopathology. 49(9):549.

Rothacker, Dietrich and Helmut Stelter. 1959. "Beitrage zur Resistenzzüchtung gegen den Kartoffelnematoden *Heterodera rostochiensis* Wollenweber IV. Das Verhalten von resistenten Bastardklonen aus sum mit *S. tuberosum* subsp. *andigenum* auf nematodenverseuchten und nematodenfreien Flächen." Der Züchter Berlin. 29(5):241-251.

Rühm, W. 1959. "Diplogasteroides Rhabdotalaimus berwigi n. sp. eine mit einer Raspelplatte ausgestattete Diplogaster Art Nematoda." Zoologischer Anzeiger. 162(11/12):356-361. Insect host - *Melolontha* spec. Location Lorsch, Germany.

 . 1959. "Nematoden und Forstpflanzen. I. Mitteilung. Zur Bodenentseuchung in Forstbaumschulen und Forstkamps." Merck Blätter. 9(3):1-16.

Rühm, Walter. 1960. "Ein Beitrag zur Nomenklatur und Systematik einiger mit Scolytiden vergesellschafter Nematodenarten." Zoologischer Anzeiger Leipzig. Bd. 164, Heft 5/6:201-213.

Salentiny, T. 1959. "Untersuchungen über einige Massnahmen zur Verminderung des Befalls von *Ditylenchus dipsaci* an Rüben in Baden-Württemberg." Z. f. Pflanzenkrank. (Pflanzepath) u. Pflanzenschutz. 66(4):210-220. English summary.

Sandner, Henryk and Alina Fedorko. 1960. "Wpływ wiłosci cyst matwika burakowego (*Heterodera schachtii* Schm.) na stopień porażenia roślin." Ekologia Polska Seria B. Tom VI - Zeszyt 1:65-69. In Polish - English summary. Influence of the quantity of beet eelworm *Heterodera schachtii* Schm. Cysts on the rate of plant infestation.

Sanwal, K. G. 1959. "A simple method for rearing pure populations of the foliar nematode, *Aphelenchoides ritzemabosi*, in the laboratory." Canadian Journal of Zoology. 37:707-711. A direct infestation method as a means of rearing pure populations of *Aphelenchoides ritzemabosi* is described. A mature female is placed directly on the ventral surface of

the leaf on a tiny droplet or a thin film of water. Reproduction takes place after successful entry of the nematode into the leaf tissue. The progeny of this female is then transferred to new leaves and the procedure is continued. Methods of maintaining high humidity around the leaves are described. The use of "mist propagation frames" to enhance the spread of disease in greenhouse beds is recommended.

Sapelina-Belokurskaia, V. I. 1959. "Investigation of methods for control of *Heterodera rostochiensis* in Lithuanian SSR." Trudy Gel'min. Lab. Akad. Nauk. SSSR. 9:264-265. In Russian.

Sasser, J. N. and Jenkins, W. R. 1960. "Nematology. Fundamentals and recent advances with emphasis on plant parasitic and soil forms." University North Carolina Press, Chapel Hill. 480pp. Re: Compilation of series of lectures and laboratory exercises of Southern Regional Graduate Summer Session in Nematology, North Carolina State College, June 8 - July 17, 1959.

Sasser, J. N. and Grover Uzzell, Jr. 1960. "Methyl bromide fumigation of *Heterodera glycines* in North Carolina." Plant Disease Reporter. 44(9): 728-732.

Sasser, J. N., W. E. Cooper and T. G. Bowery. 1960. "Recent developments in the control of sting nematode, *Belonolaimus longicaudatus*, on peanuts with 1,2-Dibromo-3-Chloropropane and En 18133." Plant Disease Reporter. 44(9):733-737.

Sauer, M. R., and J. E. Giles. 1959. "Nemagon and Vapam for the control of root knot of field tomatoes." Jour. Australian Inst. Agric. Sci. 25(2):138-141. (C.S.I.R.O., Commonwealth Res. Station, Merbein, Victoria, Australia.) Field trials were conducted two seasons, using susceptible and resistant varieties of tomatoes and applying two levels of Nemagon (1,2-dibromo-3-chloropropane), Vapam (sodium N methyl dithiocarbamate) and EDB (ethyl dibromide) as standard fumigants. Effectiveness of treatment was measured by plot and individual plant yield and by root ratings. Vapam gave good control but at higher cost. Annual row fumigation, with application of 1 gallon Nemagon per acre in double row treatments should be effective. Dosages of EDB below 20 gallons per acre might be equally effective.

Sauer, M. R. and J. E. Giles. 1959. "Field trial with a root-knot resistant tomato variety." Commonwealth Scientific and Industrial Research Organization, Australia. Technical Paper No. 3. 3-10 (plate). Initial resistance of tomato broken after repeated exposures. In a trial at Red Cliffs, a local selection of H.E.S.4242, a hybrid between *Lycopersicon peruvianum* and *L. esculentum*, displayed high resistance to root knot caused by *Meloidogyne javanica*, and yielded well. It was not resistant to *M. hapla*, which was not an important influence on yield.



Resistance decreased with successive plantings in the same soil and was lost after five crops. Decrease of resistance was not affected by rotation with other crops or by short-term fallow. Loss of resistance was due to selection of an aggressive strain of *M. javanica*. *Crotalaria spectabilis* as a summer-growing cover crop was effective in reducing soil nematode populations. Peanut, *Arachis hypogaea* caused an increase in soil populations of *M. hapla* but did not appear to affect the root-knot status of rotation crops.

Savitsky, Helen. 1960. "Meiosis in an F hybrid between a Turkish wild beet (*Beta Vulgaris*, spp. *Maritima*) and *Beta Procumbens*." Journal American Society Sugar Beet Technologists. II(1):49-67. Re: Breeding for resistance to *H. schachtii* - Genetics article.

Sayre, R. M. and W. B. Mountain. 1959. "A bioassay method for determining soil populations of *Ditylenchus dipsaci*." Phytopathology. 49(9): 549.

Scalera, Mario. 1960. "The significance of basic research and its relationship to the solution of practical problems." Not a Publication. Proceedings - Annual Meeting of Technical Committees for Regional Projects: S-19, S-26, S-35. 8 pp.

Schenek, N. C. 1960. "Watermelon disease incidence in central Florida, 1931-1959." Plant Disease Reporter. 44(7):556-558. "Root-knot nematode *Meloidogyne* spp. was recorded infrequently and usually from fields previously planted in watermelon.

Schindler, A. F., Robert N. Stewart and Peter Semeniuk. 1959. "A fusarium-nematode complex in carnations." Phytopathology 49(9):550.

Schindler, A. F. and Palmer, J. G. 1960. "Soil fumigation for nematode control." Lily Yearbook North American Lily Society. 1960:96-97.

Schmidt, Heribert. 1959. "Der Stand der Forschung auf dem Gebiet des Kartoffelnematoden." Wissenschaftliche Zeitschrift der Martin-Luther-Universität Halle-Wittenberg VIII(3):295-321. Review article on research host list and references on potato nematode *Heterodera rostochiensis*.

Schieber, Eugenio and Oscar Nery Sosa. 1960. "Nematodes on coffee in Guatemala." Plant Disease Reporter. 44(9):722-723. Re: *Meloidogyne exigua* and *Pratylenchus coffeae* -- appears to be the first report from Guatemala.

Schreiber, K., and Sembdner, G. 1959. "Über die spezifische Wirkung einiger Solanaceen-Alkaloide auf den Kartoffelnematoden, *Heterodera rostochiensis* Woll." Pharm. Ztg. 104(47):1280.

Schrieber K., and Sembdner, G. 1959. "Über Antischlüpfstoffe für den Kartoffelnematoden in Wurzeldiffusaten." Naturwissenschaften. 46(13): 434-435.

Schuster, M. L. and T. Sullivan. 1960. "Schmoo - Nematode deadly to plants." The Nebraska Experiment Station Quarterly. VI(4):5-7. General and brief report on preliminary investigations using tissue culture for nematode diseases of plants. These and other aspects of nematode physiology and biochemistry may offer useful clues from control standpoint. Illustration of root knot and sugar beet nematodes.

Sciacchitano, I. 1957. (University Firenze, Italy) "Gordium panighettensis n. sp. di gordiodeo italiano." Gordium panighettensis, a new Italian species. Monitore Zool. Ital. 65:56-59. Author describes a new sp. of Gordium G. panighettensis, which occurs in Lombardy.

Scognamiglio, A. 1959. "Nematodes, saprophytes of grapes." In Italian. Ital. Agr. Rome. 96(8):723-724.

. 1959. "Biological control of nematodes." In Italian. L'Italia Agr. 96(9):815-819. Rome. Article is a review of other works.

. 1959. "A species of nematode new for Italy, Heterodera fici Kir. 1954." In Italian. Prog. Agr. (Bologna) 5(6):695-700. Pathogenic to Ficus elastica. Illustration and text description of H. fici apparently taken directly from Kirjanova 1954. Also gives results of some tests with Mylone - fig. infected with H. fici and Meloidogyne arenaria.

Seinhorst, J. W. and D. Riezebos. 1959. "Proeven over de bestrijding van staartpeen." Overdruk uit Meded. Dir. Tuinb. 's-Gravenhage. 22(10): 620-625. Experiments on the control of tailed carrot disease, whose cause is unknown. DD treatment greatly reduced its occurrence, but Vapam as used did not.

Sembdner, G. and K. Schreiber. 1960. "Über die Schlüpfaktive Bzw. Schlüpfnemmende Wirkung der Wurzeldiffusate Verschiedener Pflanzen auf den Kartoffelnematoden, Heterodera rostochiensis Woll. 2. Mitt. Über Heterodera-Arten." The hatching and antihatching effects of the root diffusates of various plants on the eggs of the potato root eelworm... Nematologica - 50th International Symposium at Uppsala - August, 1959. Supplement II:127-140.

Shepherd, Audrey M. 1959. "Increasing the rate of larval emergence from cysts in hatching tests with beet eelworm Heterodera schachtii Schmidt." Nematologica. 4(3):161-164.

Shepherd, Audrey M. and H. R. Wallace. 1959. "A comparison of the rates of

emergence and invasion of beet eelworm *Heterodera schachtii* Schmidt and Pea root eelworm *Heterodera gottingiana* Liebscher." *Nematologica*. 4(3): 227-235.

Shepherd, Audrey M. 1959. "The invasion and development of some species of *Heterodera* in plants of different host status." *Nematologica*. 4(4): 253-267.

 . 1960. "Study of the apparent decay of eggs within cysts of *Heterodera schachtii* Schmidt and *H. gottingiana* Liebscher, and of free larvae in soil." *Nematological* 5(2):103-110.

Sher, S. A. 1959. "A disease of carnations caused by the nematode *Cricconemoides xenoplax*." *Phytopathology*. 49(11):761-763. *Criccnemoides xenoplax* Raski was shown to cause a disease of carnations typified by reduced growth of roots, tops and blossoms. The name - ring nematode decline of carnations, is proposed for this disease.

Sher, S. A. 1959. "Nematodes in avocados." *Calif. Avocado Soc. Yearbook*. 43:91-93. *Pratylenchus vulnus*. Results of field and greenhouse tests show *P. vulnus* does severe damage to young avocado plants. Preplant fumigation with D-D gave good control after first and second year, with trees from treated sites making twice the growth of trees in unfumigated soil in Ventura, where avocados followed walnuts.

Siddiqi, M. Rafiq. 1959. "Basiria graminophila n. g., n. sp., Nematoda: Tylenchinae found associated with grass roots in Aligarh, India." *Nematologica*. 4(3):217-222.

 . 1960. "Two new species of the genus *Trichodorus* Nematoda: Dorylaimoidea from India." *Proceedings of the Helminthological Society of Washington*. 27(1):22-27.

 . 1960. "Telotylenchus, a new nematode genus from North India (Tylenchida: Telotylenchinae N. sub-fam)." *Nematologica*. 5(2):73-77. *Telotylenchus indicus* n.g., n. sp. collected from soil about roots of grass, *Cynodon dactylon*.

Sieff, D. 1959. "Experiment in control of tomato eelworms." *Hassadeh*. 39:1011-1016. Re: chemical control of root knot.

Simmulb, G. F. 1960. "Application of zinc phosphide." In Russian. *Kartofel' i Ovashchi*. (1):49-50. Re: Control of gall nematodes, chiefly in greenhouse tomatoes.

Skarbilovich, T. S. 1957. "Contribution to knowledge of nematodes of clover." In Russian. *Proc. Sci. Conf. All-Union Soc. Helminth.*, 40th Ann. Gt. Oct. Social. Revol. December 11-15, 1957. Part II, 68-69.

Skarbilovich, T. S. 1959. "On the question of the systematics of the nematode family Anguillulinidae Baylis et Daubney, 1926." In Russian. Trudy Gel'min. Lab. Akad. Nauk SSSR. 9:268-271. See Skarbilovich, 1959: 117-132 for English version of this material, but not translation.

. 1959. "On the structure of systematics of nematodes, order Tylenchida Thorne, 1949." K. I. Skrjabin Helminthol Inst. Moscow. Acta Parasitol. Polonica. 7(4):117-132. In English with Polish summary. The histology of these plant parasites is reviewed from the standpoint of the systematist. The suborder Heteroderata Skarbilovich, 1957 inadvertently cited by Sander previous to this paper, is delineated. It contains 1 family, the Heteroderidae Skarbilovich, 1947, of 5 subfamilies: Heteroderinae, Tylenchululinae, Meloidogyninae n. subfam., Nacobbinae, and Sphaeronematinae. In the Heteroderinae, which has 1 genus, the genus Heterodera is made up by the subgenera Heterodera n. subgen. and Globodera n. subgen. A new grouping for the suborder Tylenchata Chitwood and Chitwood, 1950, is suggested: Neotylenchidae, Criconematidae, Dolichodoridae n. fam., Nemonchidae n. fam., Macroposthonidae n. fam., Attylenchidae n. fam., Ephydorhynchidae n. fam. and Jotonchidae n. fam.

Skarbilovich, T. S. 1959. "Hexatylus in potatoes." In Russian. Vsesojuzn. Inst. Gel'mintologii im. I. I. Skriabina. Trudy 6:395-400. English summary. Hexatylus vigissi.

. 1959. "Ecology and diseases of the sugar-beet nematode *Heterodera schachtii*." In Russian. Vsesojuzn. Inst. Gel'mintologii im. I. I. Skriabina. Trudy. 6:401-410. English summary. Parasitized by fungi.

Skarbilovich, T. S. and Potekhina, L. F. 1959. "Observations on nematodes in *Panax ginseng*." In Russian. Vsesojuzn. Inst. Gel'mintologii im. I. I. Skriabina. Trudy. 6:411-414. English summary. *Aphelenchoides panaxi* n. sp. described. Measurements, but not differentials of diagnosis given in summary.

Skarbilovich, T. S. 1959. "The family Heteroderidae Skarbilovich, 1947, and its place in the Zoological system." Vsesojuzn. Inst. Gel'mintologii im. I. I. Skriabina. Trudy. 6:387-394.

Sledge, E. B. 1959. "The extrusion of saliva from the stylet of the spiral nematode *Helicotylenchus nannus*." Nematologica. 4(4):356.

Smart, Grover C., Jr. 1959. "Ditylenchus destructor from grass, dahlia and gladiolus infecting potato tubers." Plant Disease Reporter. 43(11): 1212.

Smith, A. L. and J. B. Dick. 1960. "Inheritance of resistance to Fusarium wilt in Upland and Sea Island cottons as complicated by nematodes under

field conditions." *Phytopathology*. 50(1):44-48. Alabama Agriculture Expt. Station Auburn.

Southey, J. F. 1959. "Some records of root lesion eelworms, *Pratylenchus* spp., in England." *Plant Pathology*. 8(4):130-132. All the host plants of *P. penetrans* reported here, except *narcissus*, are members of the Ranunculaceae. It seems likely that in England *P. penetrans* is by far the commonest species of *Pratylenchus* causing economic damage. While *P. pratensis* is widespread, it does not generally cause definite symptoms and is of doubtful economic importance.

Sprau, Fritz. 1960. "Über ein vermutlich pflanzenschädigendes Auftreten eines freilebenden Nematoden, *Longidorus maximus* Bütschli an einer Reihe von Kulturpflanzen." (Observations on the appearance of plant injury in a variety of crop plants, probably caused by the free-living nematode *Longidorus maximus*.) *Nematologica* - 50th International Symposium at Uppsala - August 1959. Supplement II:49-55.

Standifer, Marie S., and V. G. Perry. 1960. "Some effects of sting and stubby root nematodes on grapefruit roots." *Phytopathology*. 50(2):152-156.

Staniland, L. N. 1959. "Nematology in perspective." Great Britain Min. Agr. Fisheries and Food. Tech. B. 7:1-6.

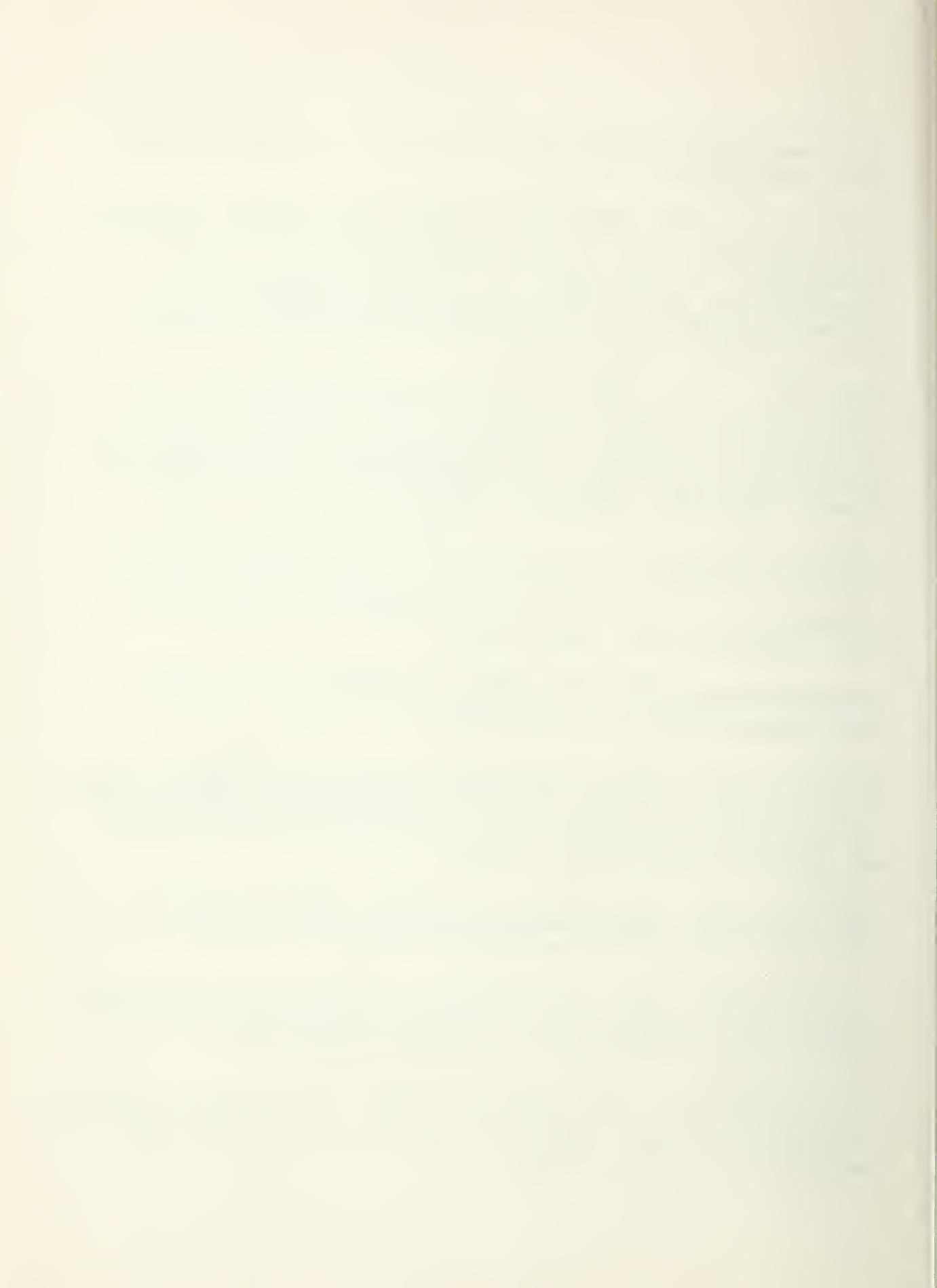
_____. 1959. "Stem eelworm in lucerne." *Agr. Merchant* 39(8):81-82. General article with photos of fumigation chamber at the Plant Pathology Laboratory at Harpenden.

Stefani, R. 1959. "Un nuovo parassita degli embiotteri *Hexamermis* sp." *Rivista di Parassitologia*. 20(1):29-32. English summary. Stefani records the occurrence of a larval mermithid, *Hexamermis* sp., from *Embia nuragia* and *E. tyrrhenica* in Sardinia. The recorded parasites, both internal and external, of Empioptera are reviewed.

Steiner, G. 1931. "Die Nematoden der Deutschen Südpolar-Expedition 1901-1903, I-II." Deutsche Südpolar-Expedition. 1901-03 Drygalski. v.20, Zool. 12:167-216 and Plates and 305-433 and Plates.

_____. 1959. "Los Nematodos: Otra Plaga de las Plantaciones de Cana de Azucar de Puerto Rico." *Revista de Agricultura de Puerto Rico*. XLVI(1):75-78. General article on nematodes and damage caused by them including damage to sugar cane. No species mentioned.

Steinhaus, Edward A. 1952. "Infectious diseases of insects". Yearbook of Agriculture of 1952. Separate #2346:388-394. General article, including mention of three types of nematodes associated with insects and their possible use in biological control.



Stelter, H. 1959. "Einige Beobachtungen an nicht-knollentragenden Solanaceen in bezug auf den Kartoffelnematoden *Heterodera rostochiensis* WR." Nachrichtenblatt für den Deutschen Pflanzenschutzd. 13(7):135.

Stelter, H., and Raeuber, A. 1959. "Untersuchungen über den Kartoffelnematoden *Heterodera rostochiensis* Wollenweber. V." English summary. Z. f. Pflanzenkrank. (Pflanzenpath.) u. Pflanzenschutz. 66(9):572-582. Subtitle: V. Die Veränderung einer Nematodenpopulation unter dem Einfluss widerstandsfähiger und anfälliger Kartoffel-Varietäten in einjährigen Topiversuchen.

Stelter, H. 1960. "Neue Fundorte von *Heterodera galeopsidis* Goffart in Deutschland." Die Naturwissenschaften. 47(7):166.

Stemerding, S. 1960. "The influence of different rotations on a population of pea cyst eelworm, *Heterodera göttingiana* Liebscher." Nematologica 50th International Symposium at Uppsala - August, 1959. Supplement II: 97-100.

Stevens, J. G. R. 1959. "Plant nematodes." World Crops 11(11):390-393. Review type article.

Støen, M. 1959. "Aphelenchoïdes spp." In Norwegian. Frukt og Baer 12:19-24. On strawberries.

Stoianov, D. 1959. "Der Selwyn als erfolgvolles Bekämpfungsmittel der Wurzelnemathode." In Bulgarian. Bulgar. Tiutun. 4(1):21-24. On tobacco.

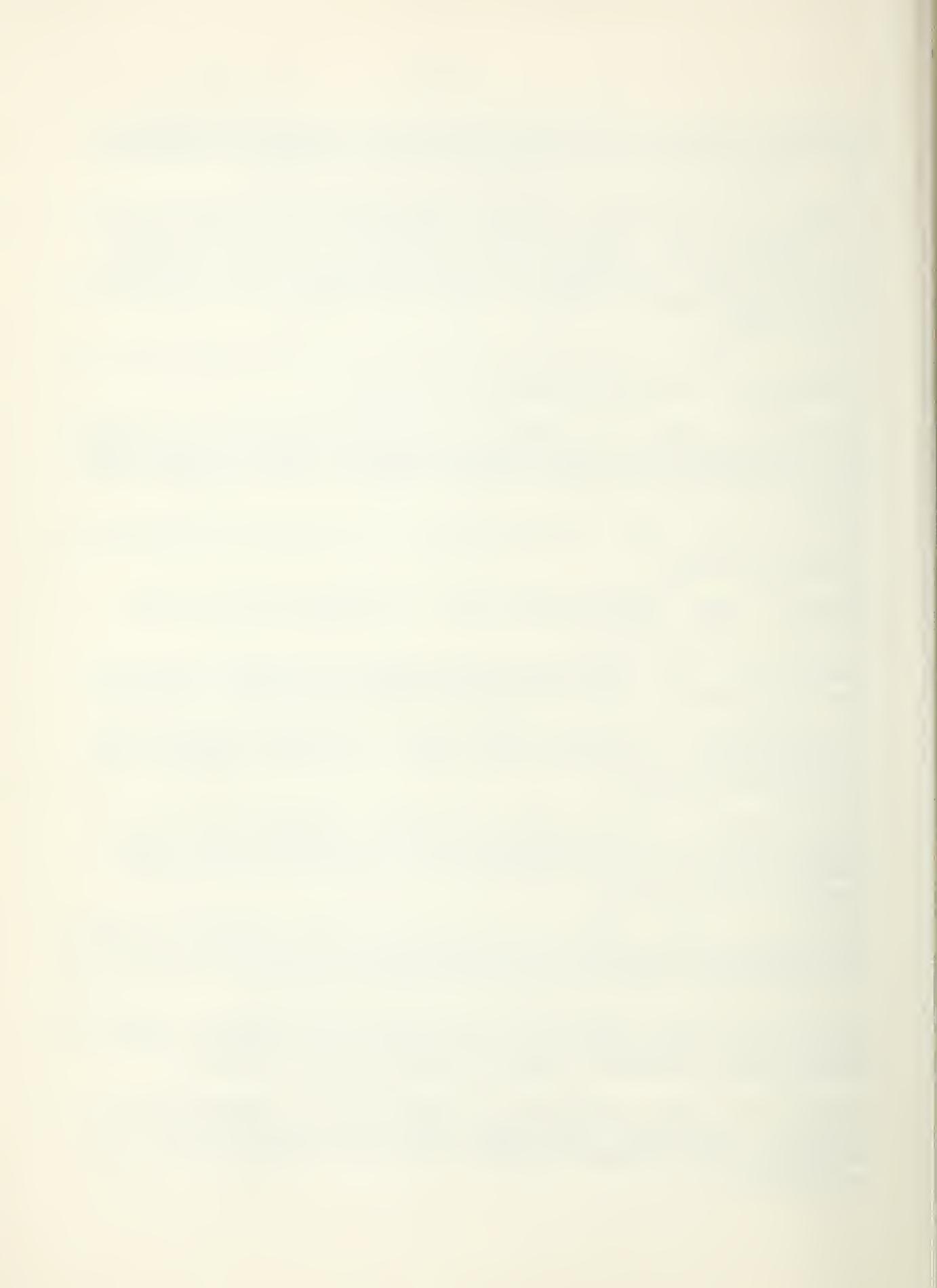
Stone, William J. and John P. Jones. 1959. "A method for making rapid photomicrographs." Plant Disease Reporter. 43(6):659. Technique only - no mention of nematodes.

Storm, Leonard W., Nancy S. Storm and Donald A. Dahlgren. 1960. "A modification of the Büchner Funnel method for transferring and concentrating nematodes." Plant Disease Reporter. 44(6):450. Technique for handling citrus nematode.

Stout, G. L. 1960. "Report on new or unusual plant pathogen." California Department of Agriculture Plant Pathology Mimeo flyer. (A-60-5):2 pp. Re: *Pratylenchus coffeeae* on *Dahlia* in California nursery.

_____. 1960. "Report of new or unusual plant pathogen." California Department of Agriculture leaflet: Plant Pathology A-60-8. 2pp. Re: *Pratylenchus convallariae* on Easter lily in California nursery.

Streu, H. T. 1960. "Observation of plant-parasitic nematodes on the roots of living plants using a glass-sided root observation box." Abstract. Phytopathology. 50:8(Part I).573. Re: *Criconemoides curvatum* on carnation.



Streu, H. T. 1960. "Nematode control on African violets." African Violet Magazine. 14(1):82-86.

Sylvain, Pierre G. 1960. "Los nematodos afectan la produccion del cafe." La Hacienda. 55(6):40-44. "Nematodes affecting the production of coffee." General article reviewing previous work by others, giving types of nematodes and their geographical distribution, 8 species and syn. and var. countries mentioned. Susceptibility and control discussed and symptoms illustrated.

Sudakova, I. M. 1959. "Weeds as reservoir hosts of plant nematodes." Trudy Gel'min. Laboratory. Akad. Nauk. SSSR. 9:322-325. In Russian - not indexed.

Tamura, I., and Kegasawa, K. 1959. "Studies on the ecology of the rice nematode, *Aphelenchooides besseyi* Christie. III. The injured features of the rice plant and the population density of nematodes found in the un-hulled rice grain with special reference to the type of the nursery bed." (In Japanese) Jap. J. Ecol. 9(1):1-4. English summary.

_____. 1959. "Studies on the ecology of the rice nematode, *Aphelenchooides besseyi* Christie. IV. The injurious feature and population dynamics of nematodes in unhulled rice grain with special reference to the cultural environment of rice plant." (In Japanese.) Jap. J. Ecol. 9(2):65-68. English summary.

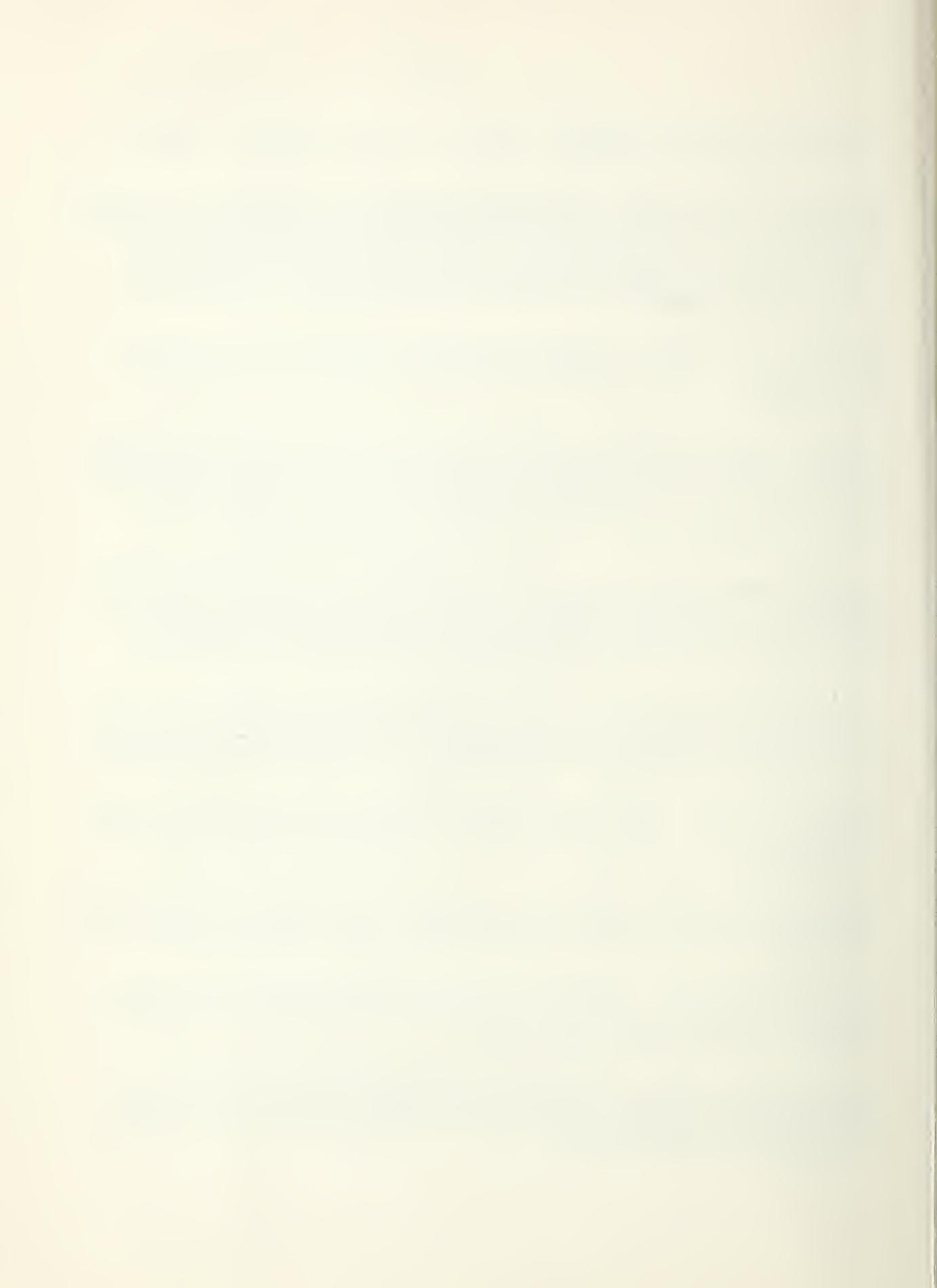
. 1959. "Studies on the ecology of the rice nematode, *Aphelenchooides besseyi* Christie. V. On the abnormal growth of rice plant and decrease in yield caused by rice nematode. (In Japanese.) Jap. J. Ecol. 9(3):120-124. English summary.

Tanaka, I. 1959. "Rice seed treatment test with rhodanateacetic esters for the control of white-tip nematode." (In Japanese.) Kyushu Agr. Res. 21:152-153.

Tarjan, A. C. 1960. "Incubation of soil and root samples in Polyethylene plastic for improved recovery of nematodes." Plant Disease Reporter. 44 (1):31-35.

. 1960. "Induction of traps of nematophagous fungi using *Panagrellus redivivus*." Nature London. 185(4715):779-780. Biological control of plant-parasitic nematodes.

. 1960. "A comparison of Polyethylene plastic bags and glass jars as incubation chambers for obtaining nematodes from roots." Plant Disease Reporter. 44(7):574-577. *Radopholus similis* from citrus roots and soil used in tests.



Tarjan, A. C. 1960. "Predacious activity and growth of nematophagous fungi on various organic substances." *Phytopathology*. 50(8-Part I):577.

 . 1960. "Some effects of African marigold on the citrus burrowing nematode, *Radopholus similis*." *Phytopathology*. 50(8 - Part I): 577.

Taylor, A. L. 1960. "Nematocides in plants and soils." *The Nature and Fate of Chemicals Applied to Soils, Plants and Animals*, U. S. Department Agriculture, ARS. (ARS 20-9):116-118. General summary.

Taylor, D. P. and T. D. Wyllie. 1959. "Interrelationship of root knot nematodes and *Rhizoctonia solani* on soybean emergence." *Phytopathology*. 49(9):552.

Taylor, Donald P. 1960. "Host range study of the spiral nematode, *Helicotylenchus microlobus*." *Plant Disease Reporter*. 44(9):747-750. Of 127 plant varieties tested, 94 were found to be hosts of the spiral nematode, *H. microlobus*.

Thames, Walter Hendrix Jr. 1959. "Plant-parasitic nematode populations of some Florida soils under cultivated and natural conditions." *Dissertation Absts.* 20(3):1109-1110. *Hoplolaimus gadsdenensis* n. sp. mentioned only in abstract. Thirteen other genera mentioned, but not indexed since no hosts or locations are given in abstract.

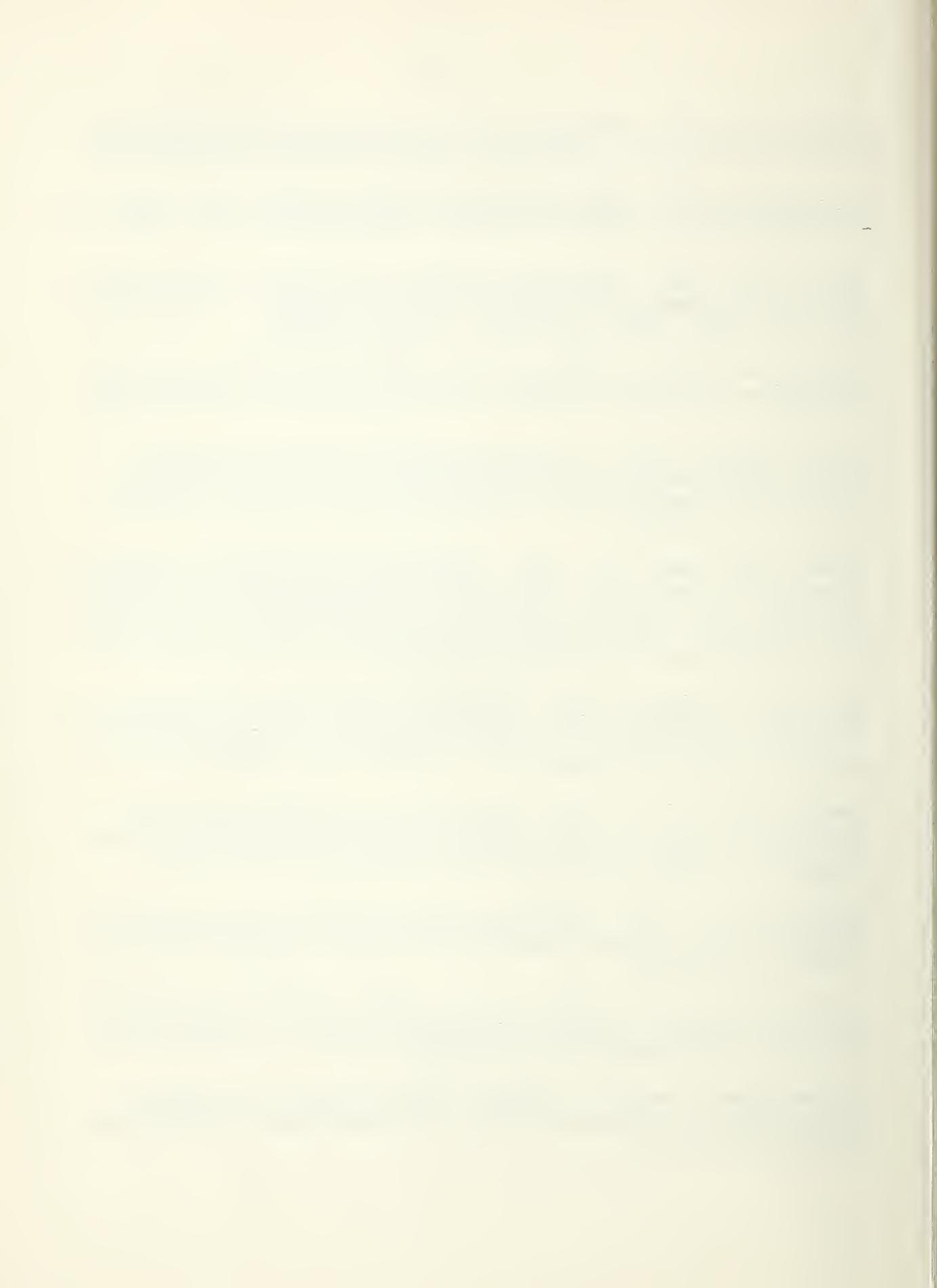
Anon. 1960. "Plant parasitic nematodes." Armed Forces Pest Control Board Tech. Information. 14pp. Re: Condensation of various texts, for use of military entomologists at military installations. (Prepared by W. H. Thames, according to footnote).

Thames, Walter H. Jr. 1960. "The effect of soil structure on the growth and survival of microorganisms in the soil." Not a Publication. Proceedings - Annual Meeting of Technical Committees for Regional Projects: S-19, S-26, S-35. 7pp.

Thomason, Ivan J. 1959. "Influence of soil texture on development of stubby-root nematode." *Phytopathology*. 49(9):552. *Trichodorus christiei* on sweet corn and okra.

Thomason, Ivan J. D., C. Erwin and M. J. Garber. 1959. "The relationship of the root-knot nematode, *Meloidogyne javanica*, to *Fusarium* wilt of cowpea." *Phytopathology*. 49(9):602-606.

Thomason, Ivan J. and H. E. McKinney. 1960. "Reaction of cowpeas, *Vigna sinensis*, to root-knot nematodes, *Meloidogyne* spp. *Plant Disease Reporter*. 44(1):51-53.



Thomason, Ivan J., S. D. Van Gundy and H. E. McKinney. 1960. "Therapy for root-knot nematodes, *Meloidogyne* spp., of sweetpotato and Tarragon propagating stocks." *Plant Disease Reporter*. 44(5):354-358.

Timm, Richard W. 1958. "Parasitology - A growing Science." *Pakistan J. Biol. and Ag. Sc.* 1(2):95-98.

 . 1959. "Nematodes associated with wilting of Jute." *Pakistan J. Biol. and Agr. Sc.* II(1):39-41.

 . 1959. "Cheilorhabditis and Odontorhabditis, two new genera of soil nematodes allied to Rhabditis." *Nematologica*. 4(3): 198-204. Found in rotting stalk of banana in East Pakistan.

 . 1959. "Observations on *Synoeinema Nematoda, Ungellidae*, with a description of two new species. *Pakistan J. of Scientific Research*. 11(2):58-62.

 . 1959. "A new species of *Pharyngonema Nematoda: Pharyngonematidae* from the body cavity of earthworm." *Pakistan J. Biol. and Agriculture Sc.* II(1):42-46.

 . 1959. "New marine nematodes of the superfamily Enoploidea from the Arabian sea." *Journal of the Bombay Natural History Society*. 56(2):204-210.

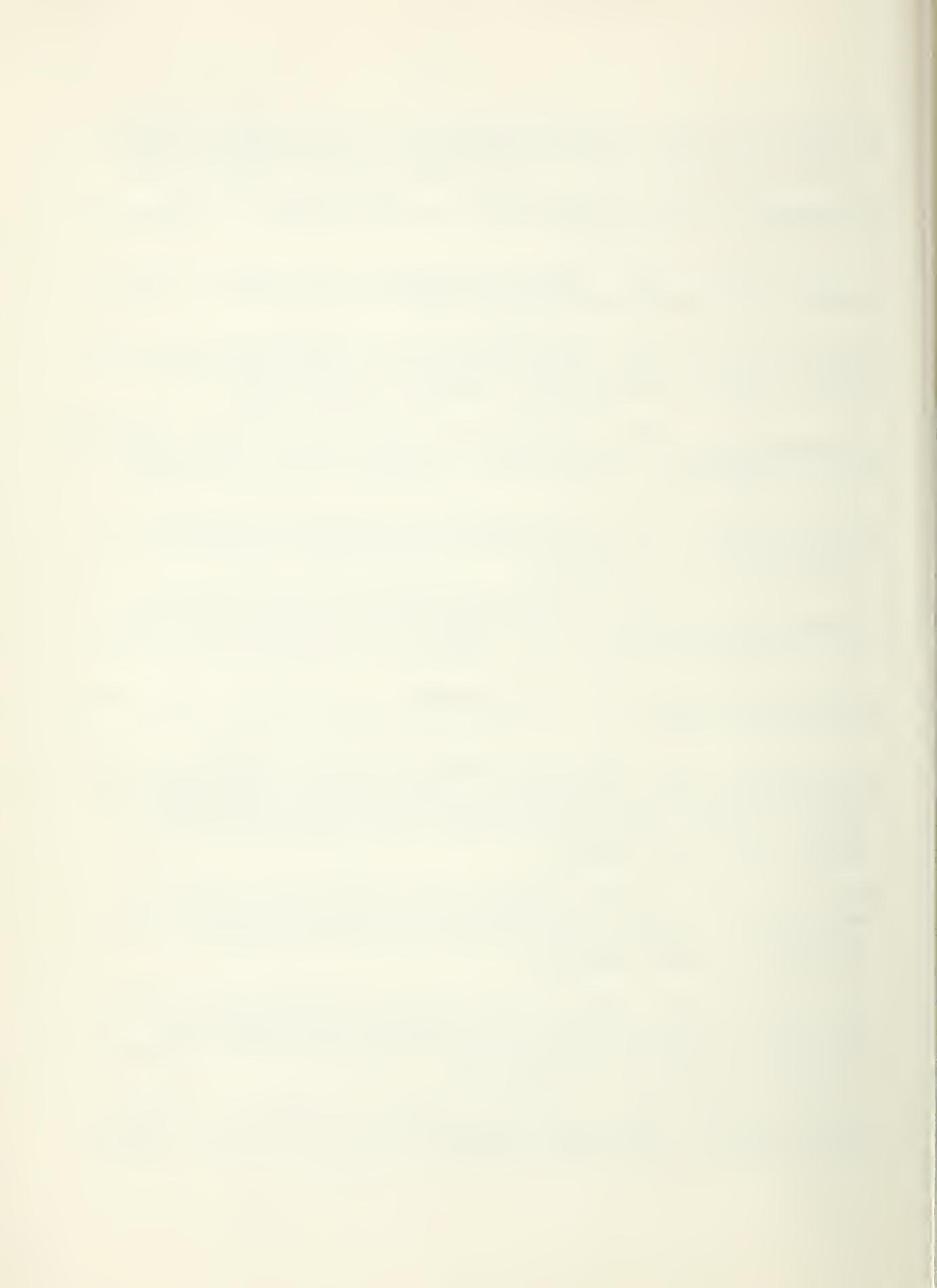
 . 1960. "The widespread occurrence of the Hemizonid." *Nematologica*. 5(2):150.

 . 1960. "The genus *Perodira Baylis*, 1943 Nematoda: Drilonematidae, with a description of a new species." *Notre Dame Coll. Dacca, E. Pakistan. Proc. Helminthol. Soc. Washington* 27(1):77-80. *Perodira pheretimae*, from the body cavity of the earthworm *Fheretima posthuma*, Dacca, East Pakistan.

Tiner, J. D. 1959. "Toward effective use of Laboratory cultures of *Pratylenchus*." *Journal of Parasitology*. 45(4-Section 2):57-58. Re: A plan to use cultured root in flowing stream of constant chemical environment, in sealed container.

Tiner, Jack D. 1960. "Cultures of the plant parasitic nematode genus *Pratylenchus* on sterile excised roots. I. Their establishment and maintenance." *Experimental Parasitology*. 9(2):121-126. Four strains of *P. penetrans* and one of *P. vulnus* used.

Tinnila, A. 1959. "The stem nematode *Ditylenchus dipsaci* as a clover pest in Finland." (In Finnish.) *Maatalous ja Koet.* 13:218-226. English summary. Re: occurrence and distribution in Finland.



Todd, A. C. 1942. "A new parasitic nematode from a water scavenger beetle." Trans. American Micro. Society. 61(3):286-289.

Toler, R. W., Rogelio Cuellar, and Juan B. Ferrer. 1959. "Preliminary survey of plant diseases in the Republic of Panama, 1955-1958." Plant Dis. Reptr. 43(11):1201-1203.

Townshend, J. L. and T. R. Davidson. 1960. "Some weed hosts of *Pratylenchus penetrans* in premier strawberry plantations." Canadian Jour. Bot. 38(3):267-273. Fifty-five species of weeds and seven of cultivated plants were collected from root rot areas in strawberry plantations and found to be infected with *Pratylenchus penetrans*. Perennial plant species with soft-textured roots contained larger populations of *P. penetrans* and had more extensive root necrosis than those plant species with hard-textured roots.

Triantaphyllou, A. C. and J. N. Sasser. 1959. "Morphological and physiological variation in *Meloidogyne incognita* and *M. incognita acrita*." Phytopathology. 49(9):553.

Triantaphyllou, A. C., and Hedwig Hirschmann. 1959. "Development and sex determination in *Meloidogyne incognita* and intersexuality in *M. javanica*." Phytopathology. 49(9):552-553.

Triantaphyllou, A. C. and J. N. Sasser. 1960. "Variation in perineal patterns and host specificity of *Meloidogyne incognita*." Phytopathology. 50(10):724-735.

Triantaphyllou, A. C. and Hedwig Hirschmann. 1960. "Post-infection development of *Meloidogyne incognita* Chitwood 1949 Nematoda: Heteroderidae." Annales de l'Institut Phytopath. Benaki Greece. 3(N.S.)(1):3-11.

Triantaphyllou, Anastasios Christou. 1960. "Variation, post-infection development and sex determination in *Meloidogyne incognita*, and oogenesis in some *Meloidogyne* species." Dissertation Absts. 20(8):3014-3015.

Triantaphyllou, A. C. 1960. "Sex determination in *Meloidogyne incognita* Chitwood, 1949 and intersexuality in *M. javanica* (Treub, 1885) Chitwood, 1949." Ann. Inst. Phytopath. Benaki (N.S.) Greece. 3(1):12-31.

Tulaganov, A. T. 1959. "Some results of study in the area of phyto-nematology in Uzbekistan in the period of 1951-1955." Trudy Gel'min. Lab. Akad. Nauk. SSSR. 9:343-345. In Russian.

Turligina, E. S. 1957. "Effect of certain chemicals on the reproduction of saprobic nematodes *Rhabditella* sp. Russian: English summary. Zologicheski Zhurnal. 36:1145-1149. A number of chemicals were shown in

laboratory tests to inhibit the reproduction of a saprophytic species of Rhabditella by decreasing fertility and prolonging ontogenesis. They may be divided into those that are very toxic and can only be used on ornamental plants, i.e. systox, pyrophos, and octomethyl, and those that are not strongly toxic and can be used on vegetables, i.e. sodium salicylate, potassium rhodanate, and ammonium selitre.

Turner, G. O. 1960. "Trizone -- a New Triple Action Soil Fumigant." Down to Earth. 15(4):2-5,24. Illus. Trizone is a trade name for a soil fumigant consisting of 61% methyl bromide, 31% chloropicrin and 8% propargyl bromide. When injected into the soil to a depth of 6 inches at points 12 inches apart at rates of 140 - 200 pounds per acre and the ground then covered with tarpaulin to prevent escape of fumes, it has been found effective as an all-purpose fumigant for control of nematodes, weeds and soil-borne diseases in vegetable and conifer seed beds and with strawberries, shade-grown tobacco and turf. Covering with tarpaulin should be prompt (within a half hour) following injection of the chemical. Following a suitable exposure period and removal of the tarpaulin the soil requires aeration for several days before seeding or planting. Aeration may be promoted by plowing or deep cultivation. The chemicals are highly toxic and care should be taken to avoid all contact with them.

Vagdykov, N. and Rodin, V. 1960. "New developments in the control of the gall nematode: use of microelements." (In Russian) Kartofel' i Ovoshchi (1):17-20. Greenhouse vegetables.

Vallance, L. G. 1959. "Division of soils and agronomy." Rpt. of Director to the Hon., the Minister Agric. and Stock, Bur. of Sugar Exp. Sta., Brisbane, Queensl., Australia. 59th Annual. 16-27. Re: soil fumigation experiment. Eleven nematode species listed which are associated with sugar cane.

van den Boogaart, K. and M. J. Hijink. 1959. "Tridipam, een Nieuw Nematicide." Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent. XXIV(3-4):645-661. Tridipam, a new nematicide.

Van Gundy, S. D., F. J. Foote, R. L. Rackham, and A. Rinkov. 1960. "Studies on methods of application of emulsifiable DBCP around living citrus trees." Plant Disease Reporter. 44(11):830-833.

Van der Linde, W. J., Jean G. Clemitson, and Martha E. Crouse. 1959. "Host-parasite relationships of South African root-knot eelworms (*Meloidogyne* spp.)." Union S. Africa Dept. Agric. Sci. Bull. 385.1-16. Ninety-two crop varieties of 65 plant species were tested and rated for resistance to four species of *Meloidogyne*. Eleven strains of *Meloidogyne incognita* var. *acrita* are recognized. Details of testing procedure are given.

van der Vecht, J. 1953. "The problem of the Mentek disease of rice in Java." Femberitaan Balai Besar Penjelidikan Pertanian - Bogor, Indonesia. (137):1-88. Bulletin discussion, general history and survey of disease - *Radopholus oryzae* considered only part of problem.

van der Vegte, F. A. 1959. "A method for fixing and mounting nematodes in one process." Nematologica. 4(4):356-357. New mixture of F.A.A. plus gum Arabic (Acacia tears and pure glycerine --to be named Arfagel.

Van Weerdt, L. G. 1959. "Studies on the biology of *Radopholus similis* (Cobb, 1893) Thorne, 1949." Dissertation Abstracts. 20(1):9. Plant pests.

Van Weerdt, L. G., A. P. Martinez and R. P. Esser. 1959. "Results of a survey designed to determine the etiology of 'lethal yellowing' of *Cocos nucifera* L." Proceedings of the Florida State Horticultural Society. 421-430. Symptoms of disease the same in Key West as in Jamaica, and could not be attributed to soil conditions, fungi, bacteria or *Aphelenchoides cocophilus* - other nemas surveyed. *Rotylenchus n. sp.* and *Xiphinema spp.* may be involved.

van Weerdt, L. G. 1960. "Studies on the biology of *Radopholus similis* (Cobb, 1893) Thorne, 1949. Part III. Embryology and post-embryonic development." Nematologica. 5(1):43-52.

Vejledninger, B. 1960. "Kløveral og lucerneal." (In Danish). Statens Forsøgsvirksomhed i Plantekultur. 109. meddelelse. 4 pages.

Velarde G., Gemaniel. 1960. "Generalidades sobre los nematodos del Algodonero y Algunas Formas de Controlarlos." Entomologia, Estac. Experiment Agric., durante la Sesion-Comida de la Asociacion de Ingenieros Agronomos residentes en Ica Peru correspondiente al diecinueve de Abril de 1960. 16pp. (mimeo). Compilation of others work, for elementary use.

Viglierchio, David R. 1959. "Collection and selection of cysts of the sugar beet nematode, *Heterodera schachtii*." (University of California, Davis.) Jour. Amer. Soc. Sugar Beet Technol. 10(4):318-329. The physical principles of methods useful for the separation of cysts from naturally occurring debris are briefly discussed. The report is concerned with the modification, extension, and combination of current procedures together with the suggestion of new ones as they may apply to large scale cyst collection. A method rearing nematodes on sugar beets grown in sand with inorganic nutrient is described.

Vinogradov M. Ye. 1957. "Lakes of the antarctic 'Oasis'." Priroda. 1957 (10):89-92.--In "Bandzher Oasis" freshwater lakes were discovered. There are also brackish lakes and lakes separated from the sea by old ice. The

biota of the freshwater lakes consists of Lyngbya, Phormidium, Schizothrix, Morigeotia and Acanthocyclops mirny. In brackish lakes Lyngbya, Symploca, Oscillatoria, Navicula, Cymbella, Amphora, Nitzchia and other diatoms and a flagellate like Chlamydomonas. Among animals only a small nematode occurred, and in water along the shore crustacea comparable to Acartia. The marine fauna is much richer.

Visser, T. 1959. "Practical aspects of the eelworm problem in tea." Tea Quart. 30(4):143-149. Eelworms are to be expected in any mono-crop. Mature tea suffers from meadow eelworm *Pratylenchus coffea* which cannot be eradicated from the tea. It is therefore very important to take advantage of the period when replanting of the tea is taking place to clear eelworms out of the replanted area. This can be done by reconditioning the land with Guatemala grass and it can be helped and accelerated by interplanting the grass with marigolds. When mature tea is infested with meadow eelworms the only thing to be done, apart from replanting, is to keep the bushes as vigorous as possible by cultural and manuring methods. Young plants are also susceptible to attack by the root knot eelworm and it is essential that tea and other nurseries should be completely cleared of this sp. and kept clear. For nurseries, a fresh soil consisting of peat, subsoil, and sand is good as it is free from eelworms. All other soils should be fumigated whether known to contain eelworms or not, and old tea soil should never be used. Fumigation should extend to the immediate surroundings of the nurseries and trenches should be dug round them to prevent eelworms migrating into the nurseries.

 . 1959. "Observations on the prevalence and control of parasitic eelworms in tea." Tea Quart. 30(2/3):96-107. Two parasitic eelworms have been found on tea. One is the well known root knot eelworm *Meloidogyne javanica* and the other the meadow eelworm *Pratylenchus coffea*. The former seems of little importance but the latter is fairly widespread, presumably more so at higher than at lower elevations in Ceylon. Where infestation has become acute losses of crop can be estimated at 250 lbs. of made tea per acre each year. There is evidence that the incorporation of organic matter in the form of loppings, compost, or manure will assist in reducing the effect of the infestation. A fair number of cover crops, green manures, and shade trees associated with tea cultivation appear to be more or less immune to meadow eelworm and not very susceptible to root knot eelworm. The planting of *Tephrosia vogellii* is not recommended because of its susceptibility to both eelworms. The cultivation of marigolds shows promise as an effective means of eelworm control in nurseries and in fallow tea soil. Soil fumigation in mature tea can depress eelworm infestation considerably but for a limited time only and though its effect on yield is found to be favourable, such fumigation of mature tea is not practicable on account of its prohibitive cost. It is advisable in nurseries on worm out soil. Soil should be left fallow for 10 to 14 weeks after fumigation.



Vogel, W. and Bernet, R. 1958. "Das Wurzelsterben bei Azaleen, eine durch Nematoden verursachte Krankheit." Schweizerischen Gartenbau-Blatt Solothurn. (13):3pp. Including tests for control: DD, Systox, Nemagon.

Walker, J. T. and J. D. Wilson. 1960. "The separation of nematodes from soil by a modified Baermann funnel technique. Plant Disease Reporter. 44(2):94-97.

Wallace, H. R. 1959. "Further observations of some factors influencing the emergence of larvae from cysts of the beet eelworm *Heterodera schachtii* Schmidt." Nematologica. 4(4):245-252.

_____. 1959. "Beet eelworm - The position today." British Sugar Beet Rev. 28(2):83-85. Writer reviews current facts relating to the increasing occurrence of eelworm in Great Britain and America and the status of control methods. Crop rotation, chemical treatment and breeding for resistance are considered as control measures. Soil type and condition affect population levels and spread of infection. *Brassica* spp. and other Crucifers are considered more important than sugar beets in increasing populations at low initial levels.

_____. 1960. "Movement of eelworms. VI. The influences of soil type, moisture gradients and host plant roots on the migration of the potato-root eelworm *Heterodera rostochiensis* Wollenweber." Ann. Appl. Biol. 48(1):107-120.

Ward, C. H. 1959. "Simple method for maintaining single-species cultures of nematodes in the greenhouse." Phytopathology. 49(9):553-554. Technique only --no species mentioned.

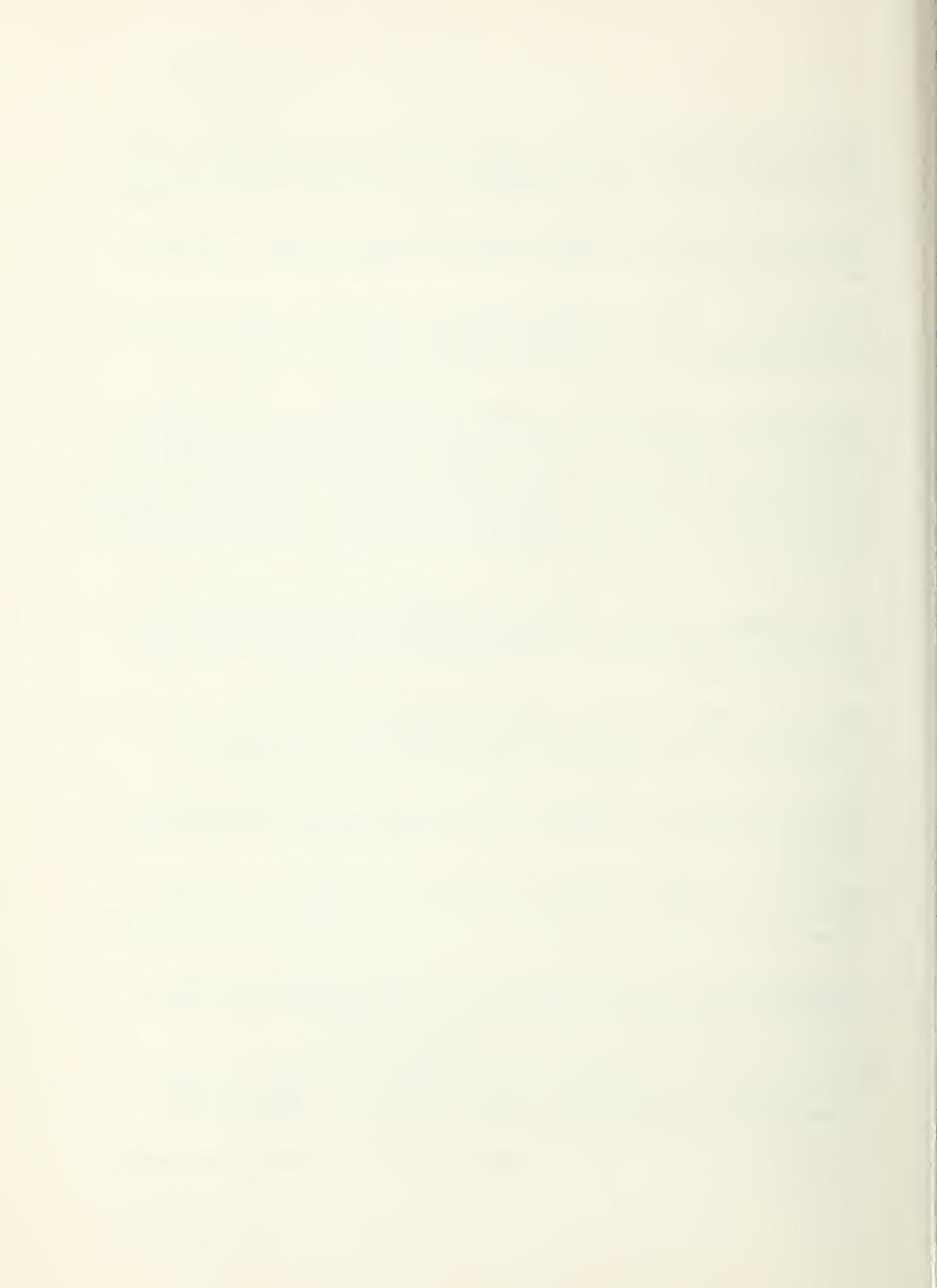
Warner, L. J. and N. G. Hague. 1960. "An improved method of making perspex cavity blocks for the processing of nematodes." Nematologica. 5(1):71-72.

Warren, L. E. 1959. "Response of peaches and walnuts to nematode control." Down to Earth. 15(3):10-13. Re: *Meloidogyne* sp. and *Pratylenchus vulnus*.

_____. 1960. "Response of established Tokay grapes to soil fumigants." Down to Earth. 15(4):13-16. Good results with Dowfume and Fumazone, injected and used in irrigation water.

Weischer, B. 1959. "Experimentelle Untersuchungen über die Wanderung von Nematoden." Nematologica. 4(3):172-186. Re: Experiments with *Heterodera rostochiensis* and *Heterodera schachtii*. English summary.

_____. 1960. "Untersuchungen über das Auftreten Pflanzenpara-



sitärer Nematoden in Weinbergsböden." *Nematologica* - 50th International Symposium at Uppsala August 1959. Supplement II:29-39. Distribution of nine genera in ten sites, from soil samples in vineyards, Germany.

Weischer, B. 1960. "Aktivitätszustand und Strahlenempfindlichkeit beim Kartoffelnematoden *Heterodera rostochiensis* Woll." Mitt. aus der Biol. Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem, Heft 99:59-65. State of activity and sensitivity to irradiation of the potato nematode.

_____. 1960. "Der Einfluss des Bodens auf die Verbreitung pflanzenparasitärer Nematoden in Rebanlagen." Mitt. aus der Biol. Bundesanstalt für Land- und Forstwirtschaft Berlin-Dahlem. Heft 99: 51-59. The influence of the soil on the distribution of plant-parasitic nematodes in grape plantings.

Welch, H. E. 1960. "Notes on the identities of mermithid parasites of North American Mosquitoes, and a redescription of *Agamomermis culicis* Stiles, 1903." *Proceedings of the Helminthological Society of Wash.* 27(2):203-206.

_____. 1960. "The taxonomy of *Hydromermis contorta* Linstow, 1889 Hagmeier, 1912, and its Synonym *Hydromermis rivicola* Corti, 1902, (Nematoda: Mermithidae) with notes on some diagnostic characters." *Nematologica*. 5(2):92-97.

_____. 1960. "Hydromermis churchillensis n. sp. (Nematoda: Mermithidae) a parasite of *Aedes communis* (DeG) from Churchill, Manitoba, with observations of its incidence and bionomics." *Canadian Journal of Zoology*. 38:465-474.

White, Lyle Vernon. 1955. "Xiphinema americanum Cobb: Its relationship to certain perennial crops in Arkansas." Unpublished Masters Thesis (Univ. of Ark. Lib.) 38pp. Survey of suspected problem areas and population studies of pine, grape, rose, alfalfa, peach and strawberry soils. No correlation found between soil pH and nematode population, and propagation on fungal colonies was unsuccessful.

White, L. V. 1960. "Host-parasite relationship of *Xiphinema americanum* Cobb, 1913, on apple, corn, and strawberry." *Diss. Abs.* 20(10):3919.

Whitehead, A. G. 1959. "The root-knot nematodes of East Africa. I. *Meloidogyne africana* n. sp., a parasite of Arabica coffee (*Coffea arabica* L.)." *Nematologica*. 4(4):272-278.

_____. 1958 (1959). "Plant Nematology." *East African Agricultural*

and Foreign Research Organization. Annual Report. pgs. 65-69. Survey (two year) of nematode genera found and crops they are associated with. *Meloidogyne africana* n. sp (in press) said to attack 60% of coffee nurseries in Meru district of Kenya.

Whitehead, A. G. 1959. "Hoplolaimus aberrans n. sp. (Hoplolaiminae Tylenchida)." Nematologica 4(4):268-271.

. 1959. "Trichotylenchus falciformis n. g., n. sp., Belonolaiminae n. Subfamily: Tylenchida Thorne, 1949, an associate of grass roots Hyparrhenia sp. in Southern Tanganyika." Nematologica. 4(4):279-285.

Whitlock, Leigh S. and Arnold E. Steele. 1960. "Notes on Hemicronemooides gaddi from camellias in Louisiana and Georgia." Plant Disease Reporter. 44(6):446-447.

Wickens, G. M. and C. Logan. 1960. "Fusarium wilt and root knot of cotton in Uganda." (Empire Cotton Growing Corp., Namulonge, Uganda). Empire Cotton Growing Rev. 37(1):15-25. Wilt of cotton, caused by *Fusarium oxysporum* f. *vasinfectum* was reported from Uganda for the first time in 1957. It is distinguished from the similar disease caused by *Verticillium dahliae*, which is indigenous in eastern Africa. Fusarium wilt in Uganda occurs in close association with attack by the root-knot nematode *Holodogyne incognita*, possibly the var. *acrita*. Reports are given of detailed field and greenhouse studies on this disease complex.

Wieser, W. 1953. "Reports of the Lund University Chile Expedition 1948-1949, #10, free-living marine nematodes, I. Enoploidea." K. Fysiograf. Sällsk. Handlingar. N.F. Lund Univ. Arsskrift. N.F. Avd. 2, Bd. 49, Nr. 6. Bd. 64(6):155 pp.

Williams, J. R. 1960. "Studies on the nematode soil fauna of sugar cane fields in Mauritius." Mauritius Sugar Industry Research Institute. Occasional Paper No. 4:1-30, 2 plates. 4. *Tylenchoidea* (patim). Description of five new species and others.

Williams, J. R. 1960. "Studies on the nematode soil fauna of sugar cane fields in Mauritius." *Nematologica*. 5(1):37-42. 5. Notes upon a parasite of root-knot nematodes.

Wilski, A., Grodzicka, I., and Radziwinowicz, J. 1959. "Experiments on the control of potato root eelworm *Heterodera rostochiensis* Woll. by the addition of chlorphenol to the soil." In Polish. Poznan. Inst. Ochrony Roslin. B.5:107-120. English summary.

Wilson, Charles L. 1959. "Chlorosis of loblolly and shortleaf pine seedlings related to calcium content of nursery soil." (Arkansas Agric.

Expt. Station, Fayetteville.) Plant Disease Reporter. 43(9):964-965.

Wilson, C. M. 1960. "The case of the bad nematode." Reader's Digest. 76(453):189-192. Popular type article. Several bad mis-statements.

Wilson, Charles Morrow. 1959. "The worms that turn History." The All Florida Weekly Magazine. 7(47):3-5. (Also published in Reader's Digest in condensed form.)

Wilson, J. D. and Hedden, O. K. 1960. "Plant-safe - material seems to combat root knot." Ohio Farm and Home Res. 45(1):2pp.

Winslow, R. D. 1959. "A note on anhydrotetronic acid as a hatching agent of the beet eelworm, *Heterodera schachtii* Schm." Nematologica. 4(3):237-238. *H. rostochiensis*, *H. cruciferae* and *H. humuli* also tested.

Winstead, N. N. 1959. "Reaction of cabbage varieties and club root-resistant lines to root-knot nematodes." Plant Disease Reporter. 43(12): 1280-1281. Five varieties and five species tested - no difference of various lines and varieties noted, except all were less severely affected by *Meloidogyne hapla*.

Winstead, N. N., D. L. Strider and L. H. Person. 1960. "Vegetable diseases in North Carolina during 1958 and 1959." Plant Disease Reporter. 44(7):491-495.

Wolcott, A. R., F. Maciak, L. N. Shepherd and R. E. Lucas. 1960. "Effects of Telone on nitrogen transformations and on growth of celery in organic soil." Down to Earth. 16(1):10-14. No specific nematode mentioned.

Wu, L. Y. 1960. "Further observations on the morphology of *Ditylenchus destructor* Thorne, 1945 Nematoda: Tylenchidae." Canadian Jour. Zool. 38 (1):47-49. Further studies of *Ditylenchus destructor* Thorne, 1945, showed that the lips frequently have very fine annules. The lateral field of the body wall usually had six incisures but the number varied from 6 to 11. The cervical papillae appeared to lie in the region between the median bulb and the esophagointestinal junction between the 2 inner incisures. The excretory system had a long, sclerotized, terminal duct and a single lateral canal usually on the right side. Nematodes from various host plants grown in greenhouse used for these studies made in Canada.

Wyllie, Thomas D. and Donald P. Taylor. 1960. "Phytophthora root rot of soybeans as affected by soil temperature and *Meloidogyne hapla*." Plant Disease Reporter. 44(7):543-545.

Yakhontov, V. V. 1957. "Biological methods of controlling insect pests, mites, and weeds." Uspekhi Sovrem. Biol. 43(3):359-364. This represents

a survey of 75 reports at the Tenth International Entomological Congress in Canada. The large-scale work on biological control, especially in the USA and Canada, is noted. Most attempts at biological control of pests, weeds etc. have the common fault of insufficient theoretical basis and generalization, empiricism, failure to study the climate and other characteristics of the localities where the entomophagous spp. are produced and where they are used, and insufficient research on their biology. There is a list of particularly effective instances of the application of parasites and predatory insects in the control of pests. The condition of the study, and application against pests, of fungi, viruses, bacteria, protozoa, nematodes, and ants is described, as is the application of phytophagous spp. against weeds. The biological method has enjoyed its greatest success in the control of imported pests and weeds by using imported parasites, predatory insects, and phytophagous spp. (for weeds). The economic effectiveness of the biological method of controlling these pests has not been sufficiently studied. Light has been cast upon problems of combining chemical and biological methods.

Yokoo, T., Kyoyo Abe, and Kazuaki Otsubo. 1959. (Saga U., Japan.) "Some experiments on the ecology of the root-knot nematode, *Meloidogyne incognita* var. *acrita* Chitwood, 1949." In Japanese with English summary. Agric. Bull. Saga Univ. 8:1-9. This is the most important species of the root-knot nematodes occurring in western Japan. The general infection rate of host cucumber seedlings by *Meloidogyne incognita* var. *acrita* was decreased by the addition of potassium or phosphorus to cultivated soil and promoted by the addition of nitrogen. Increase of soil phosphorus and nitrogen delayed the development of the nematode in the root gall while the increase of potassium promoted this development. Nematodes in infested root galls were killed when exposed to 50°C water for 20 minutes while isolated females were killed by exposure to 50°C for 10 minutes or 45°C for 20 minutes.

Yokoo, Tamio, and Kyoyo Abe. 1959. (Saga U. Japan) "Experimental studies on the life-history of the cotton southern root-knot nematode, *Meloidogyne incognita* var. *acrita*." In Japanese with English summary. Agric. Bull. Saga Univ. 9:107-121. This species causes considerable damage to agricultural crops in western Japan. Seasonal inoculation pot-experiments were performed during 1958-1959 in which cucumber seedlings were tested in the greenhouse. An investigation was made to determine the number of days required for this nematode to complete one generation during different seasons of the year. The effects of several other host-plants on the development of the nematode in the root tissues was studied. The life cycle of this nematode in summer was about 25 days. The mean daily maximum soil temperature was about 30°C (26-36°C) in this period. In Autumn about 44 days were required. Even in winter (December-February) the larvae invaded the root tissues of cucumber seedlings and developed gradually, though slowly, with an enlargement of about 15% in body length

and about 10% in maximum body breadth in about 9 weeks after the invasion of roots. This slow development may continue until spring. The mean daily maximum soil temperature in this period was about 15.7°C. The developmental curves for the body length and maximum body breadth in winter in the greenhouse are not straight, each one showing a peak. The peak in body length occurs about 27 days after invasion, and that in body breadth about 35 days after invasion. Adult females were inoculated into seedlings of soybean, rape, barley and naked-barley, and the body length and maximum breadth of the larvae isolated were determined microscopically. It is concluded that the development of larvae in root tissues in winter is very slow. The rate of development in wheat, barley and naked-barley was very slow compared with that in soybean and rape, in spite of their initial invasion.

Young, H. E. 1960. "Nematodes and sugar cane." (Queensland Bur. Sugar Expt. Sta.) Cane Growers' Quarterly Bulletin. 23(3):98-100. Includes control. -- Species of nematodes most commonly found in Queensland were *Pratylenchus zeae* and *P. brachyurus*, *Helicotylenchus nannus*, *Xiphinema pratensis*, *Longidorus* sp., *Radopholus similis*, *Tylenchorhynchus martini*, *Criconema rusticum*, *Criconemoides* sp., *Trichodorus minor*, and *Meloidogyne* sp. Increased cane yields of the order of 10 tons per acre were obtained from use of the soil fumigants DD (1,3-dichloropropene and 1,2-dichloropane) or EDB (ethylene dibromide), at 20 to 25 gal. per acre, or nemagon (1, 2-dibromo-3-chloropropane) at 2.5 to 5 gal. per acre.

Young, R. W., Miller, L. I., Hardison, W. A. and Engel, R. W. 1959. "Bromide level of cow's milk as influenced by feeding peanut vines produced on soil fumigated with Ethylene dibromide." Toxicology and Applied Pharmacology. 1(4):384-390.

Zago Fillo, H. 1959. "Os gafanhotos como hospedeiros intermediarios da Physaloptera praeputialis Linst., 1889 e da Turgida turgida (Rud. 1819) Trav., 1920 (Nematoda, Spiruroidea)." Revista Brasileira de Biologia. 19(1):9-12.

Zanardi, D. 1959. "Fifty years of tests to control 'dieback' of peppers." (In Italian). Not. sulle Mal. delle Piante N. 49/50:18-28. English summary. Caused by nematodes and fungi.

Zehle, E. 1959. "Untersuchungen zur Okologie des Kartoffelnematoden (*Heterodera rostochiensis* Woll.)." Wiss. Ztschr. der Martin-Luther-Univ. Halle-Wittenberg. Wiss. Z. Univ. Halle. Math.-Nat. VIII(4/5):540-541.

Zemlianskaia, A. I. 1959. "On the distribution of *Meloidogyne marioni* in a series of Uzbekistan oblasts." (In Russian - indexed from title only). Trudy Gel'min. Lab. Akad. Nauk. SSSR. 93-94. Vol. 9.

Zinn, D. J. 1959. "The interstitial fauna of sand." International Congress of Zoology, 15th, London, July 16-23, 1958. pgs. 317-319.

Zobell, H. 1959/60. "Crop rotation in relation to sugar beet nematode control." Sugar Beet 13(23):10-11.

Zuckerman, Bert M. 1960. "A method for the concentration of nematodes for counting from the Baermann apparatus." Proc. Helminthol. Soc. Washington. 27(1):37-39. --A technique is described which provides for rapid concentration and mounting of nematodes from Baermann extracts. The nematode-containing extract is passed through a 250 mesh sieve. The sieve is then inverted and the spot where the extract passed through is centered over a microscope slide. A drop of killing solution applied to the mesh falls to the slide carrying with it a large number of the nematodes collected on the screen. The nematode population is sampled without bias by this method.

